Devoted to Product Finishing

NOVEMBER, 1939

Industrial FINISHING

ECHNOLOGY DEPT:

housands of radios being made annually in the United States

are coated

PUBLIC LIBRARY
DETROIT

LILLY'S FINISHES

. . . and thousands already in use are protected with LILLY'S PRODUCTS

Lilly Varnish Company

666 South California Street, Indianapolis, Indiana
Branches: Chicago, Ill.; Grand Rapids, Mich.; Gardner, Mass.
The LILLY COMPANY, High Point, N. C.

eat Britain and Europe:
pply Jenson & Nicholson
boratories, Stratford,
ndon, England.

Have You Tried it?

SCRATCH IT—*The lacquer film won't chip away from the cut edge, proof of perfect adhesion. This property of the finish permits engraving when desired.*

If you have tested Blue Knight Flexible Lacquers, chances are you are already one of the 1219 manufacturers whose products are Roxalin finished. But if you haven't by all means do so *now*. See for yourself how this air dry finish refuses to chip, flake or peel. It needs no bake—air dries in regular lacquer time; no primer—clings fast to brass, aluminum, steel and die castings. Write for samples and full information today. Roxalin Flexible Lacquer Co., Inc., Box 1911, Elizabeth, N. J.

TWIST IT — *No matter how you bend this strip, the finish will not flake off. Costs can often be cut by prefinishing metal sheets . . . then stamped into shape.*

BANG IT — *The finish that withstands this treatment is assurance against costly refinishing. Blue Knight Lacquered products are not damaged by rough handling or loose packing.*

ROXALIN FINISHES

R v.16 N'39-O'40

INVESTIGATE

DAY ENAMEL

for Every Surface

For every surface there is one best white or colored finish. When you find the one that is most appropriate for your purpose most of your finishing troubles will disappear.

The Day Line of Enamels includes Lacquer, Oil, Synthetic and Spirit types. Each has superiorities in its field. Your requirements may be suited perfectly whether you spray, dip, brush, roller coat, tumble or stencil.

With this wide assortment of materials to choose from, you may select the correct finish from the standpoint of application, sales appeal and durability. Whether your primary requirement is for quality or economy in price you will want full information.

Day service can be of considerable help to you in choosing the correct Enamel. Mention your requirements and receive full recommendations. The more information you give us the better we can serve you.

JAMES B. DAY & CO.

CHICAGO

ROLL OUT NEW MILEAGE WITH

H. T. A. ZAPONITE

"The Seven League Boots of Finishing"

Manufacturers are amazed at the mileage they get with the new H. T. A. ZAPONITE wood finish. Not just a means of applying more solids in one coat, H. T. A. ZAPONITE is a real one coat finish — no sealer — by which 50% less material produces a full and complete finish. To secure the same results accomplished with H. T. A. ZAPONITE in one coat, formerly required two or three coats of ordinary finish.

Make no mistake about H. T. A. ZAPONITE, it's not merely another "Hot" Lacquer, but a revolutionary new finish, different in formula and in application technique.

There are some mighty interesting stories about H. T. A. ZAPONITE coming out of factory finishing rooms. We would like to tell you them in detail.

ZAPONITE — Reg. U. S. Pat. Off.

Sixteenth Year of Publication

Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

Vol. XVI, No. 1 | NOVEMBER, 1939 | $2.00 a Year

Contents of This Issue

Letters from Readers of Industrial Finishing 4
Washing and Flocoating Automobile Seat Frames 10
Rubbing and Polishing Furniture Mechanically 14
Enamel Viscosity 20
Equivalent Baking Schedules 25
Are We Wrong in Demanding, Using and Discarding So Many Varieties in Finish Colors 30
We Use Synthetic Enamel on Signboards, Wood Letters, Novelties 40
New Materials, Supplies, Equipment 44
Questions; Answers 54
Editorial 62

Spray Equipment Catalog 13
Catalog of Technical Books 13
Chicago's Huge Volume of Furniture 19
Colonial Lacquer Appointment 19
Centrifugal Glass Pump 19
New Colors for 1940 22
Mahogany Server 23
New Finishing Room Well Equipped 24
Metal Cleaning Code Book 28
Catalog on Ventilating Fans 38
Improved Metal Cleaning 38
Burning-in Knife 42
Paint for Hot Surfaces 42
Metal Lacquer-Enamel Review Free 42
M. J. Pearce Becomes Sales Manager for Ferbert-Schorndorfer Co. 48
Waterproof Finish 61
Hilo Sales Conference 67
Hot Lacquer Unit Bulletin 67
G. O. Zeller with Haeuser Co. 67

"Classified Advertising" Section 68
Advertisers' Index 68

Published by
Practical Publications, Inc., 222 E. Ohio St., Indianapolis, Ind.

Eastern Representative: C. A. Larson, 254 West 31st St., New York City; Phone Penna. 6-9049

Letters from Readers

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Crack Filler — Also Burning-in Irons

Would you please send us a list of manufacturers who make a crack filler to be applied under lacquer—one that will not raise or shrink afterward? We would also like the names of manufacturers who make burning-in irons for furniture repairing.—L. F. & C.

Crystallizing Lacquer

Please advise if you know of a good manufacturer of black air-drying crystallizing lacquer.—H. Engineering Corp.

Transparent Coatings

We are interested in securing samples and prices on the material mentioned on page 8 of your June 1939 issue entitled, "Transparent Coatings," and signed D. L. J.—A. E. Co.

Information supplied.—ED.

Ski and Textile Finishes

I would appreciate receiving the name of the manufacturer of Varnex (198) and Ski Lacquer or Varnish (172), as noted in one of your recent issues (January 1939). I am also interested in obtaining information concerning the water repellant for textiles which makes them "resistant to washing and dry cleaning and maintains its repellancy for the life of the goods."—C. E. T. (Works Laboratory).

To Reclaim Thinner

In an early copy of your magazine this year you stated, in answering a letter, that you could give names of manufacturers of stills for cleaning lacquer thinner. We would appreciate your advising us the names of manufacturers of this type of equipment so that we might contact them.—R. A. Mfg. Co.

See advertisement in Sept. 1939 issue, page 66.—ED.

Metal Signs Wanted

Are you in position to give us names of a few of the larger sign companies who can furnish baked enamel signs? The size we are interested in is 3x6-ft. We hope there are such concerns somewhere in this locality (Washington, Iowa).—S. Mfg. Co.

How to Spray Finishes

Kindly tell me how I may acquire information on the spray painting of art metal finishes. I have been spraying for one year. At present I am finishing airplane instruments and pilots' panels. Am using shrivel, wrinkle and crystal finishes in many

Dependable DEVILBISS

SPRAY-FINISHING EQUIPMENT

BUILDS CONFIDENCE AND PROFITS IN EVERY INDUSTRY... WITH PERFORMANCE

From all industrial fronts come enthusiastic reports of the profitable performance of DeVilbiss Product-Finishing Equipment . . . and undeniable evidence of it—repeat orders.

DeVilbiss performance is the result of a planned manufacturing procedure. Every step in DeVilbiss research, engineering and production is pointed toward efficient, economical and dependable product performance . . . and conducted the best way that 50 years of experience knows how. That's why so many industrial executives know the most reliable approach to improved product-finishing is to call DeVilbiss.

Regardless of the size or shape of your product, pins to locomotives—no matter what material you apply—whatever your plant operating set-up may be, DeVilbiss has what it takes in both equipment and experience to solve your product-finishing problems profitably—you can depend on that! Just call DeVilbiss.

DEVILBISS SPRAY SYSTEMS

THE DE VILBISS COMPANY • TOLEDO, OHIO • U.S.A.

It's the **"TOPS"**

ONE-COAT FINISH

No Heating or Baking

"TOPS" is a brand new finishing material. That's the reason it meets TODAY'S needs. You need it because it—1) Gives equivalent two coats of lacquer with single application; 2) Air-dries like lacquer, but does not require heating or baking, or special equipment; 3) Is tough as lacquer; 4) Flows out beautifully and rubs easily to brilliant luster; 5) Is exceptionally resistant to alcohol and water; 6) Covers 30% to 50% greater area than ordinary lacquer. Write us for further details about "TOPS", and special demonstration requirements.

V. J. DOLAN & COMPANY, INC.

Mfrs. of "Unquestionable Quality" Wood Finishing Supplies

1830-32 NORTH LARAMIE AVENUE CHICAGO, ILLINOIS

colors. I have all the necessary ovens and spray guns but lack the expert knowledge of spraying.—A. W. S.

Read INDUSTRIAL FINISHING magazine every month.—ED.

Metal Mirrors

Please refer to the October edition of INDUSTRIAL FINISHING and advise the name of the manufacturer of metal-bord metal mirrors, as described in your article on page 70 of this edition. We shall appreciate hearing from this company in regard to prices and also would appreciate receiving a sample of their material.—M. Co.

Information has been given.—ED.

Spray Stencils

In your October magazine we found, under the heading of "Spray Stencils," an item stating that the Dexter Lacquer & Enamel Co. makes stencils for the trade. We are interested in contacting some people who do this type of work. We are making a jumping horse which requires a stencil of a horse's head.

Will you please refer this inquiry to any people who make a stencil, or advise us the name so that we might contact them?—B. E. P. Co. (Store Fixtures).

Information supplied.—ED.

Coating with Zinc

I have had several inquiries relative to the feasibility of coating the insides of water towers with zinc. I would like to find out about this process, and where I can obtain the proper equipment. Is there such a thing as applying metallized zinc, this to be applied with electrolytic zinc method. Does this mean by means of a gun?

I have a request for a bid on a job of this sort upon my desk now and would appreciate an immediate reply.—P. G. A. (Painting Contractor).

We suggest that you investigate metal spraying equipment. This involves the spraying of hot metal which is fed to the spray gun in

wire form, heated to the melting point, and sprayed hot onto surfaces to which it adheres like paint. This metal spraying process has been used for several years and we suggest that you write one or more of the concerns who manufacture and supply equipment for this type of work. Names and addresses are being sent to you by mail.—ED.

Sound Deadener

In the October issue of INDUSTRIAL FINISHING, on page 9, we notice the "H. Mfg. Co." is interested in a sound-deadening material. We manufacture this product and if you will be good enough to give us the full name and address of the above-mentioned concern, we shall be glad to contact them.—Minnesota Mining & Mfg. Co.

Wax Free Tack Rags

Will you kindly send us the name and address of a manufacturer who makes a wax free tack rag?—J. C. Co. (Caskets).

See the Wm. A. Juergens Co. ¼-page advertisement in any issue of INDUSTRIAL FINISHING.—ED.

Rust-Resistant Coating

We are interested in the process Rust-Resistant "R-700," mentioned in INDUSTRIAL FINISHING of January last, reference No. 159, and would appreciate your requesting the suppliers of this material to send us the fullest particulars and prices (wholesale) by an early mail.—B. & W. Sydney, N. S. W., Australia.

Product of Varnish Products Co.

I. F. Articles Reprinted

Mr. W. G. Sheane, of the General Electric Co., has been kind enough to give us permission to reprint one of the two articles which he submitted to INDUSTRIAL FINISHING. One was used in your April 1939 issue and the other in August.

I will appreciate it very much if you will give us a reprint permission on these articles, with the understanding that due credit will be given to your publication. Inasmuch as we would like to use this material in our November issue, we would appreciate it especially if you would send us by return mail copies of

For
HIGHEST LUSTRE
and
PUREST COLOR
Use
ULTRA RAY
PEARL ESSENCE

— Always Uniform —
with
ULTRA BRILLIANCY
ULTRA PURITY
ULTRA DURABILITY

★

Ultra Ray's scientifically controlled method of manufacturing has created a new Standard of Brilliance. Comparative tests in every field where pearl essence is used has resulted in proof that the quality of ULTRA RAY PEARL ESSENCE is unequalled.

★

Produced by
"The Originators of American Pearl Essence"
Edw. I. Petow & Son
Laboratories, Lubec, Maine
Executive Offices, Hyannis, Mass.
Established 1917

★

(Special Ultra Ray Pearl Essence may be obtained for use with vehicles other than lacquer.)

Cut Sanding Costs with a

STERLING

***Speed-Bloc* SANDER**

Hand-sanding is costly—costly from EVERY angle; material, labor, time. Stop this unnecessary waste—turn it to profit—and in about three months you'll have paid for the equipment that brings you these great savings. Sterling Speed-Bloc Sanders are used extensively in leading plants from coast to coast—daily showing reductions in labor and abrasive costs as high as 75%.

There is no obligation involved in asking us to demonstrate the Sterling on YOUR OWN work. Don't continue with expensive hand-sanding when the Sterling way does BETTER work FASTER and MORE ECONOMICALLY.

Just drop us a card

Sterling Products Co.

2653 Woodward Ave., Detroit, Mich.

3380 Robertson Blvd., Los Angeles

your April and August issues.

If we can reciprocate your favor at any time, please do not hesitate to call upon us.—Samuel Dunckel, Editor of The Stove Builder.

Having received your letter with the enclosed bulletin and observed the efforts you have expended in my behalf, please accept my sincerest thanks. The information supplied seems to be the perfect solution of my problem . . . .

Let me state further, if I had to pay ten times the subscription price of INDUSTRIAL FINISHING, I would still think that it is one of the best investments I have ever made.—S. S.

Drying Coatings Inside Deep Tanks

I am interested in learning of instances where heated air or gases have been forced, blown or directed into tanks as a means of drying or curing coatings and linings. The tanks would be of metal construction, may range in size from about 500 gallons capacity up, and are coated to resist metal corrosion and to protect the products contained therein. Can you refer me to any use of such technique prior to the year 1936?—C. C. C.

We have no specific information on this. Can some reader suggest or recommend something?—ED.

Paint to Stick to Chromium

On page 61 of October issue of INDUSTRIAL FINISHING, you mention that you have an editorial entitled "Makes Paint Stick to Chromium Plate," which we would be interested in receiving.—B. C. I. Co. (Bird Cages).

We have a synthetic enamel which will answer the requirements of the L. R. Co. whose inquiry appears under the above title in October issue.

Our Franzite red enamel may be reduced 3 parts to 1 part for spraying, and bakes at 250°F. for 10 minutes or 225°F. for 15 minutes. It is only necessary to wipe the chromium plate with a rag soaked in alcohol before spraying. When this has been done, and with the Franzite handled according to directions, the finish adheres to chromium plate very well.

We would like to have the name and address of the L. R. Co., so

that we could offer this material for their use. It is already being used successfully by several manufacturers.—Hilo Varnish Corp.

Supplies Metal Strips

In August issue, page 61, someone expressed interest in a supplier of finished metal strips. We pre-finish sheets and coils of various metals, such as steel, zinc, copper and brass with nickel, chromium, brass and copper. Some of our finishes are mentioned in the leaflet we are sending you. The illustrations on the front of this leaflet show just one of our novelty finishes, special satin striped patterns. Your readers may be interested in this information.—Apollo Metal Works.

"Plexiglas" Too

Our attention has been called to a notice in your September 1939 issue, in which, in answer to a question from the B. H. Co., you mentioned the fact that "Lucite" is a product of the DuPont Co. Possibly your reader would be interested to know that the plastic material we manufacture, "Plexiglas," has similar properties and several features which may be of interest to him.—Rohm & Haas Co.

Graining Rollers

We have a customer on synthetic enamels for finishing metal cabinets, who is interested in securing a rubber roller for graining to simulate the grain of wood. Will you kindly advise if you know one or more sources of supply for this type of product?—N. A. Corp.

Baked Enamel Stripper

I am interested in baked enamel stripper. Please furnish me with names of manufacturers or inform manufacturers of my inquiry.—L. B. (State Highway Dept.).

We note on page 70 of October issue of INDUSTRIAL FINISHING, a request from "C. N." for a baked

(Continued on page 66)

Metalized (PYROXYLIN LACQUER BASE)

PRIMER-SURFACER No. 4776-A

for the foundation of the finish

Primes and Surfaces in one operation on METAL — WOOD — COMPOSITIONS

Covers—fills—dries fast. Sands in ten minutes. Topcoat immediately after sanding.

Leafing action of metallic ingredients insures covering, hiding and filling properties.

Excellent base for oil enamels, air dry or bake, lacquer enamels or synthetics.

Perfect adhesion and flexibility on all metals.

LACQUERS THINNERS ENAMELS METALIZED FINISHES SYNTHETICS

UNITED LACQUER MFG. CORP.

General Offices: 67 West 44th Street, New York, N. Y.

Laboratories and Factory: Linden, N. J.

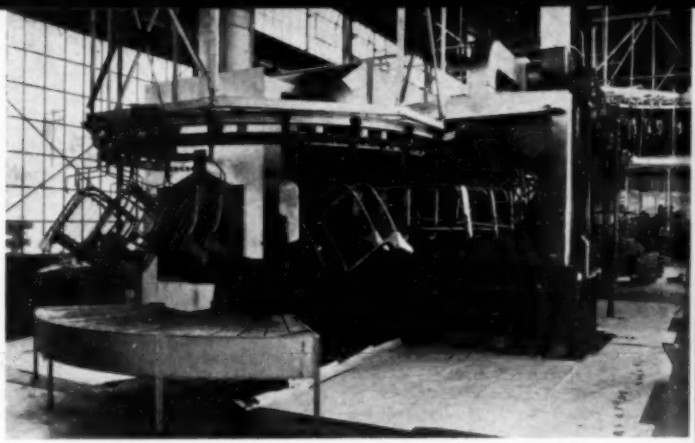


Fig. 1—Exit of the hot washing-rinsing-drying machine appears at left; entrance to flocoating machine is at the right. Photographs courtesy The R. C. Mahon Co.

Washing and Flocoating

IN THE well-equipped plant of The American Metal Products Co., Detroit, Mich., a new automatic installation has been placed in operation for washing, rinsing, drying, flocoating and finally air-drying the black paint on metal seat frames and zigzag springs used in automobiles. Two views of the equipment, taken from opposite directions, are shown above. A plan of the layout appears on a following page.

A continuous overhead chain conveyor with suitable hangers moves the seat frame assemblies to, through, and from the stations where washing, rinsing, drying and painting operations are automatically performed. This chain is driven by a 1-h.p. motor, through a variable-speed transmission so that its speed can be slowed down or stepped up as conditions may warrant. At the present time it is traveling at the rate of about 6.7-ft. per minute and delivers 240 loaded hangers per hour.

Washing; Rinsing; Drying

Seat frames are loaded onto the conveyor hangers as shown at the right in Fig. 2. From here they travel into and through the washing booth wherein they are thoroughly and forcibly washed by sprays of a hot cleaning solution. Multiple nozzles especially designed for spraying cleaning solution are positioned to best advantage for this work. Washing is followed by rinsing with clean hot water which is also directed against the parts by multiple spray nozzles suitably mounted for this work. The rinsing removes all traces of cleaning solution. Before leaving the inclosure in which washing and rinsing

Fig. 2—Entrance to washing-rinsing-drying machine appears at the right; loading station for conveyor is in foreground; flocoating machine and drip pan are at left.

Automobile Seat Frames

BY. H. G. MOORE

operations are performed, the parts pass through an area wherein the water is "blown off" with hot air to quickly remove and dry the moisture remaining on surfaces.

The wash and rinse tanks are mounted 6-ft. in the air so that the work enters the machine at floor level, goes up 6-ft. over the wash and rinse tanks and, after the rinse, again descends to floor level at the exit end. By so doing, a heat seal is formed to prevent the steam from the washes billowing out into the plant. The wash and rinse are both maintained at 180°F.

The water in tanks is heated by immersion heaters which consist of two loops of 10-in. diameter pipe running through each tank. The heat is supplied by No. 581 Hauck burners which are oil fired. At each end of the washing machine, stacks extend up through the roof to remove the vapors. The exhaust gasses from both the rinse and wash tanks are exhausted by a fan driven by a 3-h.p., 1750-r.p.m. motor. These gasses are piped to a point just above the exit end of the washer and are blown through two 4x12 nozzles onto the work. The gasses, being about 350°F. and coming into the washer at considerable velocity, tend to blow off and dry the water from the parts. They also force all of the steam from both tanks to the entering end of the machine where it is exhausted by a 14-in. stack, as shown in the illustrations. This arrangement of the exhaust gasses, being blown on the work and forcing the steam

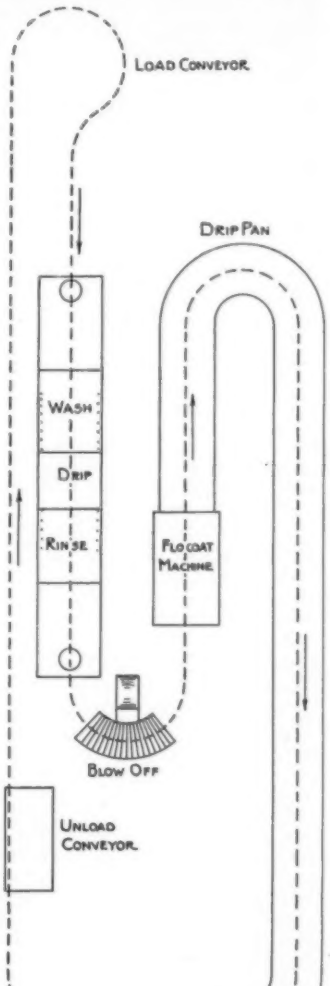
to the entering end, as just mentioned, prevents the steam from condensing on the roof of the washer and continually dripping onto the work. These exhaust gasses seem to in no way damage or dirty the work coming from the washer.

The left side of the illustration marked Fig. 1 shows where the loaded conveyor hangers emerge from the washing, rinsing and drying machine. As they make the hairpin turn toward the flocoating booth, they are quickly cooled by multiple up-drafts of air which is blown by a fan through radial slots in the semi-circular exhaust hood located directly under the conveyor line.

Another feature which has been added to this system, to eliminate the few drops of water that cling to the bottom of seat frames, is an incline of about 1-in. in the conveyor with an abrupt drop at a point opposite the cooling fan. This drop shakes the work sufficiently to break loose the few remaining drops of water.

Automatic Flocoating Machine

In the flocoating booth the parts are "drenched" with black paint that flows forcibly from multiple nipples positioned above and at both sides of the line of conveyor travel. The flow-off of material that doesn't cling to the work, runs back into a tank below the conveyor and is again pumped into the pipe lines for recirculation. Exhaust hoods and piping at both the entrance and exit of the flocoating booth remove all escaping fumes and vapors incident to the operation of this equipment. Tests are made to determine the viscosity of the paint



Plan view of the conveyor and equipment.

from time to time and thinner is added when needed to compensate for what is lost by evaporation. In case of fire, automatic safety devices cause the supply of paint in the open tank to be quickly dumped into a closed safety tank under the floor. This material can be pumped back into the open tank with the same pump that recirculates the paint.

After the conveyor leaves the flocoating booths, it ascends to a higher level, makes another hairpin turn, as shown at the left in Fig. 2, and carries the painted seat frames to a loading platform where they are loaded onto trucks and hauled to the automobile plant. The time allowance for complete air-drying is 20 minutes and the length and speed of conveyor travel is arranged accordingly.

A wide, shallow drip-pan under the conveyor, where it leaves the flocoating booth, is lined with sheets of wrapping paper to catch drippings of paint. This is shown clearly at the left in Fig. 2. This drip-pan continues around under the conveyor to the loading platform, so there is no possibility of black paint dripping on anyone and anything under the conveyor line after the painted seat frames leave the flocoating booth.

While this automatic washing and coating system handles automobile seat frames perfectly, it is also adaptable to washing and coating other metal products. Although it is now operating on an air-drying basis, space is available for adding an oven along the conveyor line to permit the use of a bake finish. In fact, if it were so desired at some time in the future, the present flocoating booth could be removed and replaced with a spray booth, and the present one-coat air-dry finish could be changed to a one-coat or two-coat bake finish, with or without facilities for applying added decorative treatment. This practical adaptability of production facilities to changed conditions and different work in the future is something that wise factory executives and engineers always have in mind whenever an investment in new equipment is made.

Spray Equipment Catalog

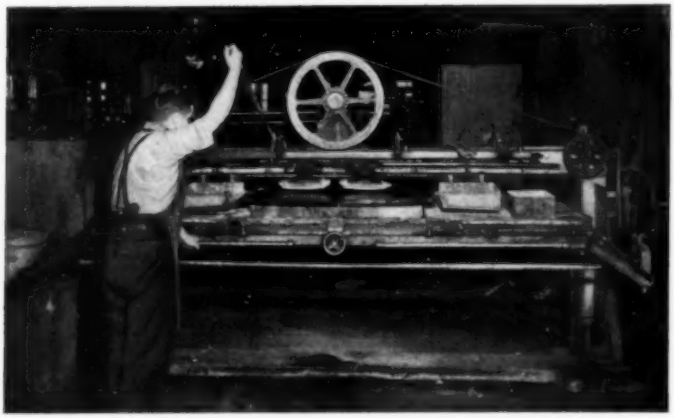
Catalog No. 75, just issued by Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill., contains more than 100 pages (8½x11-in.) that describe and illustrate the complete Binks line of spray painting and finishing equipment for all types of users. Everything is included from the little outfits to large installations for automatically spraying sheet stock and various products on a quantity production basis. Installations such as those used by manufacturers of automobiles, trucks, buses and street cars are illustrated and described; also equipment for maintenance painting.

This is the largest and most complete catalog Binks has ever issued. It contains Loose Leaves in white and colored sections, bound in a heavy varnished red paper binder, lettered in black and white. Many items unknown to the average finish user are listed in this valuable reference book.

Catalog of Technical Books

A new 40-page catalog of technical books has just been issued by the Chemical Publishing Co., Inc., 144 Lafayette St., New York, N. Y. It covers domestic and imported books on chemistry, physics, mathematics, medicine, metallurgy, machinery, engineering, biology, general science, business, manufacturing, and technical dictionaries. A copy will be sent to anyone interested, on receipt of stamps to cover postage.

Rubbing and Polishing



A long-stroke rubbing machine in operation. Photo, courtesy Curtis Mach. Corp.

FORMERLY the task of rubbing and polishing the final finish on furniture was all hand work—and it is still hand work in some factories. However, many progressive concerns have taken to doing this work with machines, of which there are several types and makes for the purpose.

For rubbing large flat surfaces such as furniture tops, bed ends and other work of similar character, large stationary long-stroke machines are available. The pads are adjusted to move back and forth lengthwise of the grain of the wood. As a rule, stationary rubbing machines have two pads each of which travels half the length of the machine carriage. The use of two pads tends to eliminate long marks on the work and also allows the surfaces to be rubbed closer to the edges. In fact, when a machine is in good condition and properly adjusted, it is entirely possible to work right up to the edge in the direction of the motion of the pad, and clear to the front edge of the piece—provided there are no scallops or irregularities to interfere.

By using two pads it is possible to rub two smaller pieces at the same time. Also, the automatic stroke-shifting mechanism on one make of machine makes it possible to rub and polish round

Furniture Mechanically

BY W. H. ROHR

As in new automotive finishing, so also in production furniture finishing, we now have practical machines to efficiently perform the hard work of rubbing, buffing and polishing finished surfaces. Here is information that explains how to use some of these machines.

A 2-pad short-stroke portable rubbing machine operated with compressed air.

or oval-shaped tops as well as those that are square or rectangular. One model has a counterweighted guide bar which enables the operator to rub warped surfaces as well as those that are absolutely flat.

Stationary, long-stroke rubbing machines (available in 6, 8 and 10-ft. sizes) can be adjusted to take only the tops of tables or desks, or the carriage can be lowered to receive an entire cabinet, so the top surface can be rubbed.

Setting Up Machine for Mechanical Rubbing

To set the machine for doing a job of rubbing, the operator first adjusts it by lowering or raising the carriage so the pads are about ½-in. above the top surface to be rubbed. Then he adjusts it for length of stroke.

Rubbing compound and liquid are sprinkled or smeared all over the surface and the mechanically driven pads spread it and do the work. Of course, the machine's performance depends entirely upon the operator. He is responsible for controlling it and making sure that the lubricant in the form of oil or water is added

as needed and where needed, while the mechanical rubbing is in progress. He must see to it that: 1) The surface being rubbed is level or parallel with the pads; 2) a suitable mixture of rubbing compound and lubricant is liberally applied and maintained over the surface; 3) the pressure and speed of the pads are just right for the kind of finish being rubbed; 4) the rubbing pads are presented to the work steadily to give neither too much nor too little rubbing at any part of the surface.

Both the rubbing action and the abrasive must be properly applied to produce a uniformly rubbed surface. The operator can do skillful and effective work if he manages the machine and his materials properly—and if he has good light to see what he is doing. If he doesn't, he can do a great deal of harm to the finish.

Rubbing Pressure

The pressure on the piece is controlled by means of a lever which the operator holds while rubbing. He may apply as much as 150-lbs. of pressure, all depending upon the hardness and depth of the film of varnish or lacquer—and this, according to an experienced foreman finisher, is one of the advantages of a long-stroke machine. This foreman declares that an expert operator, on a stroke machine, can rub a large varnished top in from two to five minutes, and a lacquered top in from five to seven minutes.

Experienced finishers insist that a varnished finish should set from 24 to 72 hours before it is rubbed, as a soft film will not rub down; neither will it polish. Any film of finishing material—varnish, synthetic or lacquer—must be dry and hard clear through before it can be rubbed satisfactorily.

A piece of furniture should be carefully inspected before being rubbed to make sure that the varnish or lacquer is thoroughly dry and that there are no "heavy edges." A wet film or "heavy edge" will corrode or "corn" (as old finishers call it) on the felt pads, causing it to scratch and often ruin the finish.

A single-block portable rubbing machine driven by compressed air.

Materials Used for Rubbing

For a dull satin finish it is customary to use pumice and oil; for a medium polish, some concerns use Tripoli instead of pumice; for a high luster, a mixture of Tripoli and rottenstone is often used. Some furniture manufacturers are using ordinary paraffin rubbing oil tinted to a brown color so as to avoid showing white in case any pumice and

oil are left in carvings and crevices—as is sometimes the case.

A few concerns use water instead of oil for rubbing. Water has no body therefore it permits more friction, and as a result the cutting is much faster than when oil is used. Water has a tendency to stick in the carvings and moldings and, when dry, the abrasives show in these crevices. Also, in factories that do not use waterproof plywood and veneered work, the use of water in connection with rubbing sometimes causes veneer to come loose around drawer edges and tops.

Edges, Moldings, Carvings

After a top has been rubbed it is removed from the machine and all edges are hand rubbed with a folded piece of burlap or soft felt dipped first in oil or water and then in pumice. Then the ends and front of the piece of furniture are rubbed with a portable machine, using the same oil or water and abrasives that were used on the top. After this, all moldings are rubbed by hand and all carvings are brushed with a stiff bristle brush. Then all of the oil and abrasive mixture remaining on the surfaces is removed with soft cotton waste or cheesecloth (waste is much better). Following this wipe-off, all accumulations of materials in crevices and carvings are removed by blowing them out with an air gun.

Portable Rubbing Machines

Portable machines with small reciprocating pads are available for rubbing the smaller areas. Some portable machines are driven by compressed air; others are driven electrically by plugging in the extension cord to an electric light socket. These portable machines have been described and illustrated in previous issues of INDUSTRIAL FINISHING.

Different workmen employ different technique in rubbing with the portable machine. Some mix their abrasive with the lubricant so that it is in a sort of wet paste form like thick soup. They keep this mixture in a pan close at hand, dipping a rag or sponge into it and smearing it over the surface or "puddling" it on in one or two spots. The machine pads spread the "soup" all over the surface. Others wet the surface with the lubricant (oil or water) and then sprinkle on the pumice stone, Tripoli, rottenstone or other rubbing compound, either by hand or with a container having holes punched in the lid.

Avoid "Corns" on Pads

The operator of a portable rubbing machine must watch the felt pads to see that no "corns" or small lumps of varnish accumulate on them to cause scratching of the surface being rubbed. These lumps can be removed by scraping with an ordinary cabinetmaker's scraper. In some rubbing departments a corrugated board is provided and portable rubbing machines are placed on this board when not at work. The operator starts his machine while its pads are resting on this corrugated surface. In this way he removes any lumps that may have formed or started to form on the pads.

A number of finishers today are using fine abrasive paper on the pads of their portable machines for rubbing lacquered sur-

Skillfully buffing finished furniture with a portable electric-driven sheep's wool disc.

faces, and sometimes for rubbing varnished surfaces. The purpose of this practice, which might be compared to "gas sanding" in automotive finishing, is to speed up the work and lighten the labor of rubbing. Naturally, abrasive paper cuts much faster than pumice stone. Rubbing with fine abrasive paper, properly lubricated and skillfully applied, is then usually followed by the customary felt-pad machine rubbing with pumice and oil or pumice and water.

In one establishment the operators use No. 320 waterproof silicon carbide paper, clamping it in position over the pads with a special attachment. Oil or water is first spread over the surface to be rubbed, to serve as a lubricant and to prevent the paper from scratching. The surface is rubbed smooth with this lubricated abrasive paper. Then another operator follows with the usual felt-pad machine rubbing, using pumice and oil or pumice and water. In some factories the final rubbing is accomplished by wet sanding with No. 400 wet-or-dry sandpaper, after which a clean wipe-off and waxing follow.

Buffing with Sheep's Wool; Polishing with Furniture Polish

If a polished luster is desired, rubbing is followed by buffing and polishing. Part of this work can also be done with portable machines. The operator first applies a special buffing compound, of which there are several on the market. Then, using a portable rotating sheep's wool disc, he carefully and expertly guides this buffer over the surface. He allows it to buff only lightly and he holds it at a slight angle (usually elevating the near end) so that the circular wooly disc doesn't lie entirely flat on the surface while it does its work.

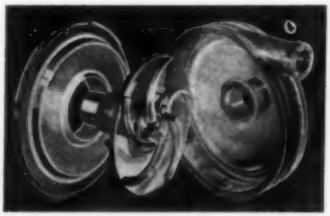
After the machine buffing and wipe-off, a furniture wax-polish is usually applied by hand. The workman moistens a piece of waste or cheesecloth with polish and uses this to distribute the polish over the surface. Then, if a high luster is desired, he wipes and rubs this polish-coated surface briskly with soft cotton waste or cheesecloth; if a dull finish is wanted, he simply wipes off the surplus polish. Of course, the type of polish used for a high-luster finish is generally different from what is used on a dull finish. For high luster work it is customary to use a polish containing abrasive material, as this will quickly remove any trace

of the very fine marks that have been left by rubbing with pumice. On the other hand, a polish containing no abrasive is preferable for use on dull-rubbed finishes, as here the purpose of the polish is to remove all traces of oil, water or abrasive from the finished surface.

In hand rubbing and polishing, some finishers use No. 2/0 steelwool with a colored paste wax for rubbing lacquered mahogany finishes. The usual practice is to roll a portion of steelwool into a soft pad about the size of one's hand, then dip this into paste wax, and rub and wax the surface in one operation. After the surface is rubbed down it is cleaned by rubbing it briskly with cheesecloth. This gives the dull satin finish.

One finishing foreman declares that: "The biggest advantage of machine rubbing over hand rubbing is the saving of labor costs. A man with an ordinary portable machine can rub down, to a smooth surface, as much work as three men could do by hand—and a properly machine-rubbed piece is much more smooth and level than a hand-rubbed job."

Acknowledgment: In the preparation of this article, which involved repeated check-ups and revision in order to obtain accuracy, the author wishes to acknowledge the valuable help and splendid cooperation of a practical man who is backed by 20 years of successful experience in furniture finishing, Mr. H. W. Chester, foreman finisher at Lenoir Furniture Corp., Lenoir, N.C.



Parts of a practical glass pump of the centrifugal type of pumping strong acids and boiling-hot liquids. The rotor is perfectly balanced. So clear is the glass that the interior of the pump may be watched while it is in operation. All acid solutions (except hydrofluoric or glacial phosphoric acids) may be used without fear of pitting or injuring the hard chemical "Pyrex" brand glass surface . . . developed by cooperation of the Corning Glass Works, Corning, N. Y., and the Nash Engineering Co., South Norwalk, Conn., which will market it.

Chicago's Huge Volume of Furniture

According to figures obtained from a confidential survey made by the Chicago Furniture Mfrs. Assn. (7 S. Dearborn St.), firms that are members of the association produced and shipped 9446 pieces of furniture per working day during the year 1938, making the huge total of 2,833,800 pieces for the year.

In a breakdown of types reported, occasional furniture led with 4532 pieces per day; next came upholstered pieces, listing 1020 sofas and chairs. Breakfast and dinette pieces, special furniture and radio cabinets accounted for 995 pieces; case goods, including cedar chests and juvenile furniture, 931 pieces; and office chairs, beauty and barber chairs, 752 pieces. Parlor frames, for which Chicago is the first market, were turned out at the rate of 673 per working day.

Chicago also leads the country as a producer of office desks, 136 a day being made during 1938.

Colonial Lacquer Appointment

Mr. Ernest Weaver, President of the Colonial Lacquer & Chemical Co., of Framingham, Mass., has announced the appointment of Mr. Arthur W. McLean as Vice President in charge of sales. Mr. McLean is well known in New England and will make his headquarters at the home office in Framingham.

Enamel Viscosity

BY R. JAY BURNS

Why and how the viscosity of any paint material before it is used, while it is being sprayed, and the film thickness it produces—why these things are so tremendously important in the actual cost and quality of our final finish, and what can be done to control them.

THE PRESENT trend in baking-enamel viscosity presents an interesting study. Formerly, in order to put enough solids into a formula to give adequate "hiding" to the paint film, it was necessary to combine the pigment with a varnish having a very high viscosity (great resistance to flowing) in order to carry the pigment. Newer developments are with low-viscosity varnishes (very fluid; little resistance to flowing).

With the high-viscosity varnish-enamels it was necessary to use much more thinner on the job to reduce the enamel to a spraying viscosity. The ideal toward which formulators are now working is to produce an enamel so low in viscosity that no thinning will be necessary to cause the finish to spray freely and flow out free from orange peel. In some instances this ideal has been attained.

Cost; Percentage of Solids; Addition of Thinner

Since it costs just as much to make the low-viscosity enamel as the high-viscosity enamel, the first question that a buyer might ask is, "What about my cost? If the enamel costs $2.50 a gallon and I reduce it at the rate of two parts enamel to one part of

thinner at $.50 a gallon, my cost at the spray gun is $1.83 a gallon. With the enamel that will be sprayed full weight, my cost at the gun is $2.50 a gallon."

A typical formula for a white synthetic-resin enamel for use on refrigerators, washing machines, ironers, steel kitchen cabinets, etc., will specify about 60% solids and 40% liquids. When such an enamel is reduced two parts of enamel to one part of thinner, the total solids of the reduced enamel is 40%.

It is only the solid part of the enamel that makes the finish. The liquids are used as a binder for the pigment and as a means of spreading the finish on evenly; therefore it is the solids that make the finish. We are not concerned here with hardness, toughness, flexibility, and other qualities of the finish, but with film thickness and covering capacity only.

If it is necessary to spray a film 1½ mils (a mil is one thousandth part of an inch; .001-in.) in order to hide and protect the surface, and if an area of 1000-sq.ft. is to be coated, 216-cu.in. of finish will be needed. To simplify our calculations, we will make no allowance for material wasted in atomization and overspray. Since one gallon of liquid contains 231-cu.in., 216/231 or .935 parts of a gallon of solids are required to finish the 1000-sq.ft.

With an enamel that contains 60% of solids, 1.56 gallons are required. With a 40%-solids enamel (the 60% enamel reduced two parts to one part thinner) 2.34 gallons are required. The 60% enamel costs $2.50 x 1.56 gallons, or $3.90. The 40% enamel costs $1.83 x 2.34 gallons, or $4.28.

The difference in cost, $4.28 minus $3.90 or $.38, is for the thinner used to spread the high-viscosity enamel. This thinner will evaporate in the oven so that it is entirely lost so far as final finish is concerned. Add to this the time required to add thinner to the enamel, the operator will have to spray more slowly or go over the work more often, and consider the trouble that might result from inaccurate thinning —and it is easy to realize the advantages of using a low-viscosity enamel that requires no thinning.

It is no longer possible (if it ever was so) to determine the relative solids of enamels by the volume of thinner necessary to reduce them to spraying viscosity. It is my every day experience that many buyers are not cognizant of this fact.

Comparative Tests; Viscosity; Film Thickness

The best way and most practical way to determine which finish is more economical for a certain job is to spray five or ten gallons, or a drum, in regular production and then count the number of units finished. If one enamel has 60% solids and another has only 50% solids, this will be quite evident. Quart and gallon samples will not show this as too much material is wasted in adjusting the gun and learning how to handle the material.

Of course, in running any comparative test, it is essential that the same film thickness be applied with each material. Even an experienced spray man may vary as much as a mil in film

thickness when handling two different materials. One enamel may spray more freely than the other; that is, one enamel may have less resistance in passing through the orifice of the gun because it atomizes more readily. Every experienced spray man knows that some enamels spray "easy" while others spray "hard."

There is now available an instrument that accurately measures the film thickness of a finish without in any way marring the finish. Any user of white enamel in large volume should have one of these instruments and someone in the organization should regularly check the amount of finish that is being applied. This is not intended as an advertising plug for paint film meters; my job has to do with finishing materials, not instruments.

Even when a man is spraying the same enamel, at the same viscosity and on the same kind of work, day after day, he will vary his film thickness. Actual tests show that when a man starts work in the morning, he will lay on about the right coating. As he tires toward noon he will be inclined to vary his work and lay on a heavier or lighter coating. After luncheon, he again does a good job but as the afternoon advances he tires more rapidly than in the morning and again varys the amount of finish that he lays on the work. If an inspector, usually the foreman, is checking the film thickness every hour or so and prodding the spray man, he does more uniform work. This not only saves enamel but insures a proper finish.

It is a fact that there is a definite danger line as to how thin the enamel film may be. If it is too thin, it is only a comparatively short time until the metal under the finish begins to corrode. Refrigerator manufacturers, in particular, have known this for a long time and have been very fussy about getting proper film thicknesses.

There are, of course, many other factors that contribute to finish breakdown. In this article, we are assuming that enamels of equal quality, so far as stamina is concerned, are being compared.

Summarizing, it is evident that it is more satisfactory and more economical to use a white enamel that requires no thinning or a minimum of thinning. Such enamels are now made so that they cover solidly in one pass of the spray gun. In many cases it is not even necessary to first spray a mist coat in order to hang enough material onto the work without getting sags. This is not wholly a matter of viscosity but a matter of initial setup time.

New Colors for 1940

ARE YOU interested in new colors or color schemes for any of your 1940 styled products? The spring 1940 woolen shades, issued by the Textile Color Card Association to its members, reveal the colors that will be popular in the advance fashion program for the coming seasons.

Special significance is attached to two featured collections, Skytones and Playtones. The stimulating hues in the group of Playtones have decided vitality and brilliance. They include strong turquoise, peacock and royal

blues, called Tropic Aqua, Panama Blue and Boating Blue, as well as the very new Sundeck Blue.

Bright orangy coral and yellowish reds are interpreted in Sun Coral and Daring Red, while strong rose tones comprise Cruise Rose and Southsea Rose, the latter in the fuchsia gamme.

Sporting Green, an Irish type, Festive Green, a lush tropical hue, Lucky Gold and Hawaii Violet are the remaining shades in this gay group.

Skytones are balmy pastel tints, decidedly summery in character. They are appropriately named Heaven Pink, Aura Green, Coral Haze, Blue Sky, Solar Yellow, Dawngreen, Moonlight Green, Horizon Mauve, Skycloud, Twilight Rose, Aqualite and Sunset Glow.

Among the basic colors, which are captioned Doubletones because of their arrangement in groups of two harmonizing shades, interesting tans and light browns strike a decidedly new note, including the subtle rosy cocoa tone, Floritan, and French Caramel. Other smart versions of yellower tonality are Honey Amber and the warm light Dixie Brown. In the piquant mustard and ginger family are Golden Mustard and Topaz Tan. Barley Beige and Java Coffee are classic renditions.

Continued success is forecast for the blue family, in new expressions such as Blulight and Planet Blue, which incline to the greenish cast, as well as Tide Blue and Undersea Blue, representing new versions of ocean or watery blues. In the greyish horizon or slate classifications are Thistle Blue and Blue Paysanne. Yankee Navy is a clear lively tone, grouped with its lighter complement, Acadia Blue.

Greens, so strongly entrenched in the winter mode, repeat their fashion favor for spring in new looking types, such as the luminous Electric Green of bluish cast and the lighter Green Aqua. Limefruit and Tropic Moss are fresh spring-like versions of yellowish undertone. The cool greyish note is reflected in Greenspray and Arctic Green. Completing this important family are Manoa Green and Woodgreen, rich true tones.

Another smart note among spring color preferences is reflected in the new purplish dahlia tones, Monterey Rose and Rose Dahlia, which are expected to supersede the fuchsia family of the past spring. Also, inclining

This graceful server with brass grilles on bow-front doors is part of an 18th Century interchangeable mahogany group shown recently at the American Furniture Mart. Striped upholstery on the scroll-back chair adds attractive touch.

to the mauvish side, but more greyed in tonality, are the mellowed Dove Rose and Grape Red. The cloudy Pink Jade and the rosewood tone, Cherrybark, are high style and very subtle in character.

Of interest in the range of spring neutrals are Greywing and its darker complement, Clipper Grey. Coral Melon and the deeper terra cotta tone, Redspice, strike a more vibrant note. Representing the violet range are Ash Lilac and Persian Iris.

New Finishing Room Well Equipped

A PAINT and lacquer finishing department installation of advanced design has been installed by International Business Machines Corp. in its plant at Endicott, N. Y. The installation has eight booths for applying standard paint finishes and three for spraying parts with special enamels and lacquers.

Water-wash systems have been installed in the spray booths to protect the health of operators and reduce fire hazard. The rear wall of each booth is covered with a thin, continuous curtain of falling water, moving at the rate of 22 gallons a minute. Ventilating blowers draw air from the booth through a narrow aperture at the bottom of the water curtain at a velocity of 130-ft. a minute. The water contains a chemical compound which absorbs the paint trapped, either by striking the curtain directly or by being carried into it by the ventilating air current.

The blowers draw 46,100-cu. ft. of air per minute from outside the building, and provision is made for heating it in winter or cooling it in summer before it is delivered into the booths. All booths are provided with indirect lighting to reduce glare.

Operator in position ready to spray a batch of small parts resting on a wire mesh tray in water-wash booth.

A central system for storing, mixing and supplying paint has also been installed. It provides three central mixing tanks, each holding 300 gallons of paint which is kept in continuous agitation. It is fed to the spray booths through 1500-ft. of feeder pipes in which it is kept circulating night and day to prevent clogging.

A monorail conveyor system transports the sprayed parts directly to an automatically timed and regulated baking oven.

The installation, which is believed to be one of the most modern in the state, has been inspected by a number of industrial executives desirous of studying the latest methods of finishing.

I am submitting a discussion on equivalent baking schedules for organic finishing materials for your consideration. In addition to the fact that the subject is an extremely interesting one, I believe the readers of this journal will find some practical information which they might apply to their own problems.—THE AUTHOR.

Equivalent *Baking Schedules*

BY WILLARD SEEMAN

IN MANY instances, the finishing superintendent is confronted with the difficulty of producing a number of baking finishes, each with its individual cycle; consequently, it often happens that the available baking equipment cannot satisfy production because of the lag in making changes in operating conditions — temperature, in particular. For example, two or more different bakes may be required during the same working shift, using the same oven. Differences in time do not present a difficult problem, but if the temperatures vary widely there will be time lost in either cooling or raising the heat in the oven to the proper degree for each finish.

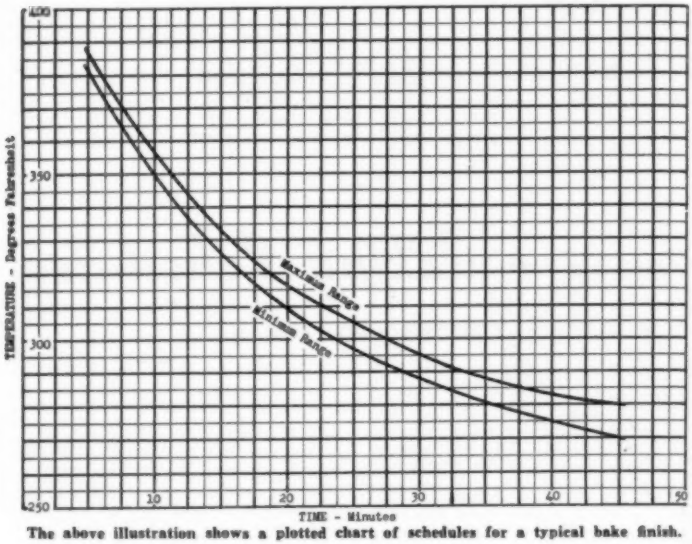
Fortunately most organic finishing materials of the baking variety can be cured under a number of different schedules to produce practically equivalent film characteristics. It is possible, therefore, to at least reduce the difference in temperature between some schedules and, where materials of similar formulations are used, standardize on a single temperature, with obvious savings in time and money.

Any change in schedules, of course, should be on the advice of the manufacturer of the finishing material. However, an understanding of the factors involved by the user is very helful and the following suggestions and recommendations are presented in the hope that they will aid in any case involving equivalent bakes.

The curing of heat-converting (baking) organic finishing materials to produce a finish possessing satisfactory performance requirements follows certain laws of chemistry and physical chemistry, dependent on various interrelated factors. These include the composition of the finishing material, the thickness of the applied film, the size and the type of metal of the object being finished, and the temperature and time of the baking schedule.

Composition of Finishing Material

A) RESINS — Resins used in baking materials are of two gen-



The above illustration shows a plotted chart of schedules for a typical bake finish.

eral types, namely, oxidizing and polymerizing. The former cures by the formation of compounds with oxygen, while the latter undergoes an internal bonding.

The baking schedules of finishing materials made from oxydizing resins can be varied considerably, since oxidation will eventually occur, even at reduced temperatures.

Where polymerizing resins are used, there is a critical minimum temperature which must be reached if curing is to take place. Below this temperature the desired reaction does not progress at any normal rate, nor will it continue to the desired endpoint.

In general, polymerizing finishes are capable of more rapid curing than those of the oxidizing type.

Finishing materials containing both kinds of resins bake more rapidly than those with only oxidizing resins present, not only because of the characteristically faster reaction of polymerizing resins to heat, but also because of the accelerating or catalytic effect of polymerizing resin upon the oxidizing resin.

B) PIGMENTS—Dark colors absorb heat more rapidly than light colors and objects so finished will come to temperature more quickly.

Some pigments appear to have a retarding action on the curing process, while others seem to be entirely neutral.

Still others may accelerate baking, much like the action of driers which are sometimes added to oxidizing resin formulations to attain curing at lower temperatures or in shorter periods of time.

Have You, In These Critical Times, a Dependable Second Source for Wood Lacquers?

HILO WOOD LACQUERS cannot be first or second choice with all Wood Furniture Manufacturers, but they are worth trying in comparison with what you are using.

These new lacquers, Hilo Bulletin No. 11-1, are all increasing steadily in volume of sales. Accept now, with our compliments, a copy of the bulletin and one gallon or five gallons of Hilo No. 3303 One Hour Sanding Sealer . . . whatever you would need for a good trial. Later you will want to order some of the lacquers on approval — and you'll have Hilo in your plant regularly or as a good second source of supply.

HILO

HILO VARNISH CORP.

42-60 STEWART AVENUE, BROOKLYN, N. Y.

Boston Chicago

— — — — — — **TRIAL ORDER** — — — — — —

HILO VARNISH CORP. Date.....

42-60 Stewart Avenue, Brooklyn, N. Y.

Gentlemen: Please send us a sample of Hilo No. 3303 One Hour Sanding Sealer. We will need ..... gallons for our test.

Name.....

Company.....

City..... State.....

I. F. NOV.

C) SOLVENTS—Solvents in some formulations tend to become trapped in the applied film, inhibiting oxidation and polymerization, especially in early part of the bake. This phenomenon is physical rather than chemical in its action and manifests itself in the necessity for more heat, either in longer baking time or higher temperature.

Thickness of Film

The thickness of films of polymerizing resin formulations does not seem to influence baking characteristics, since the reaction is mainly a function of temperature.

Because oxidation begins at the surface and proceeds inward, thick films of oxidizing-type materials cure more slowly than thinner films at the same temperature.

Heavy films of any finishing material contribute to solvent retention (see above).

Type and Mass of Metal

Metals vary in their ability to absorb and transfer heat from section to section. This is a factor in the time necessary to bring the piece to temperature. Heavy sections and large shapes do not heat through as quickly as small, thin pieces.

Time and Temperature

The curing of heat-converting finishing materials is essentially a chemical reaction and generally proceeds more rapidly at higher temperatures. In other words, baking schedules may be reduced in time if a compensating higher temperature is used.

Solvent removal is facilitated by elevated temperatures.

High temperature bakes of short duration do not allow as close control as do shorter, lower temperature schedules.

Discoloration and loss of gloss may result from high temperatures, even if the baking time is reduced.

It will be seen from the foregoing that the subject of equivalent baking schedules is exceedingly complex. However some factors enter more strongly than others and while quantitative analysis may not be possible, successful results can be obtained through practical tests and with the aid and the experience of the material manufacturer.

Metal Cleaning Code Book, $2.50

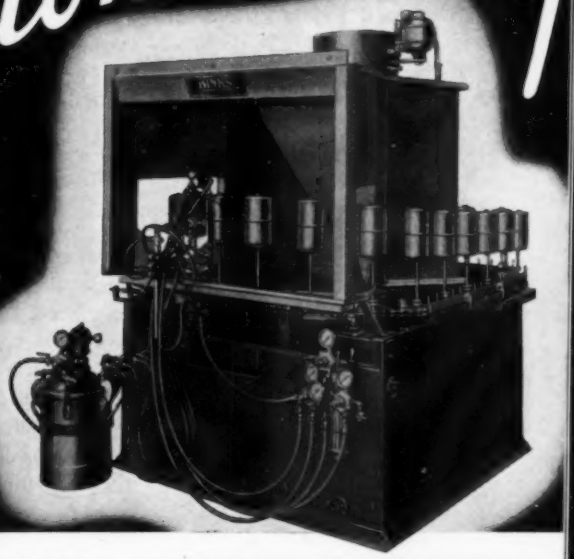
The American Foundrymen's Association's Committee on Industrial Hygiene Codes has developed for publication a fourth code in its series of recommended good practices. This fourth code entitled "Recommended Good Practice Code for Metal Cleaning Sanitation" covers recommended practices and installations for alkaline, solvent, solvent degreasing, metal pickling, tumbling mill and abrasive blasting cleaning processes, as well as pertinent information on metal cleaning generally for the prevention of accidents and minimizing exposure to occupational disease. As far as the committee has been able to determine, this is the first time that definite engineering recommendations have been published dealing directly with the hazards involved.

The section on Solvent Degreasing Processes should be very helpful to those considering the newer methods of cleaning by chlorinated hydrocarbons. The Abrasive Blasting Cleaning Processes section is timely because it is applicable to old as well as new installations for exhaust and accident prevention needs.

The Code material can be used to advantage by those purchasing and installing new equipment or renovating old equipment and by vendors of equipment and it should afford the essential information that might be included in industrial codes of regulatory bodies.

The codebook consists of 42 pages, and is priced at $2.50 per copy. The association's address is 222 W. Adams St., Chicago, Ill.

WHY NOT FINISH IT *Automatically*



Binks SPRAY SYSTEMS

AUTOMATIC FINISHING SAVES MONEY

Whether it is clocks, battery boxes, golf balls, small parts, electric appliances, or any of a host of other objects you wish to finish automatically, the chances are that Binks has just the unit you need to do the work at high speed and low cost. ✱ The machine illustrated is the Binks Automatic Spindle Machine, sister unit to the famous Binks Automatic Reciprocating Machine for finishing flat ware. Between these two machines practically any product or part can be finished with surprising speed. ✱ These machines use the newly perfected Binks Thor Model No. 21 Automatic Spray Gun with a 3-way valve that turns the gun off while it passes from unit to unit, thus insuring greater economy. ✱ Write today for a Binks Representative to survey your plant and quote you a price on the automatic equipment you need.

BINKS MANUFACTURING COMPANY

3114-40 CARROLL AVENUE **CHICAGO, ILLINOIS**

New York—Detroit—San Francisco—Philadelphia—Pittsburgh—Cleveland—Milwaukee—Boston—Los Angeles—St. Louis—Seattle—Windsor, Ont., Canada

ARE WE WRONG IN DEMANDING, USING AND DISCARDING SO MANY

Varieties in Finish Colors

BY T. J. PIRRUNG

Foreman finisher suggests that we change finish colors less often and concentrate more on finding one or a few nice attractive colors that will show up furniture and cabinet woods to the best possible advantage, then use them until something really better is found.

A MANUFACTURER of finishing materials states that his stain laboratory has on file 8000 formulas for wood stain mixtures which have been supplied to the trade. Three men are constantly employed developing new colors or matching colors to satisfy the desires and requirements of the company's customers.

The variety of shipments has increased to such an extent and the volume in individual orders has so diminished that it seriously affects costs and service. The same trend, although to a lesser extent, is affecting the departments manufacturing fillers and enamels.

The desire of furniture producers to constantly offer new, or shall we say changing, designs and colors is responsible. This policy is probably the correct thing to do if qualities of the new are preferable to the old. Change itself, however, is no criterion of improved results. Too frequent change is often an indication and acknowledgment that previous efforts have been unsatisfactory. A continuation of this policy seldom meets with expectations.

Efforts should be continually directed toward improving existent colors and developing new ones. None should be adopted, however, until they are entirely satisfactory. Many colors or shades that at first appear attractive, pall quickly. This is a serious detriment to furniture which is purchased, in most cases, with the expectation of having it remain attractive during many years of service. Some colors are limited in use because of restricted availability of complimentary colors. Others are difficult to produce as fast colors, and fading is always to be avoided.

About 11 years ago an eastern manufacturer of maple furniture

. . . A PROTECTIVE COATING

That Never Gets Brittle!

ONE OF INDUSTRY'S MOST VERSATILE PRODUCTS . . .

If you have a finishing problem in which extra toughness and flexibility are demanded, let us send you enough Lionoil to make a test. This amber clear liquid, to which color can easily be added, is one of industry's most useful finishes — as a rust-preventive, primer or wood preservative. Ideal as a protective coating on highly finished metal surfaces to eliminate abrasion in handling. Write for further information—and a free sample.

BERRY BROTHERS

DETROIT, MICHIGAN • WALKERVILLE, ONTARIO

BERRY BROTHERS *Lionoil*

A RUST PREVENTIVE • WOOD PRESERVATIVE • PRIMER

Kindly mention INDUSTRIAL FINISHING when writing advertisers

developed a beautiful maple shade. It was produced by an application of a light brilliant golden brown stain and then a rich dark brown glaze filler. The resultant 2-tone effect was permanently pleasing. This color is still being produced in large volume. Perhaps an artist of exceptional ability could improve on it, although this is doubtful.

A mid-western concern manufacturing dining room furniture has a mahogany finish that has not been varied in 15 years. Prior to that, the color was changed with the design, once or twice a year. This company continues to bring out new designs with the same frequency, but no change is made in the color. They have not seen nor cannot find a more pleasing color, and because of this the sales on their mahogany suites are uniformly maintained.

Another manufacturer uses only distilled water in mixing water stains, claiming that chemicals in some water produce a dull effect in the finish. This firm is extremely cautious as to kind of lacquer used. The foreman finisher tests each drum of material when it is received to make sure that there has been no change in the product to affect its clarity. Workmen in this factory have been carefully trained to always produce the same sheen or luster that gives the finish its unusual quality. Exceptional skill is required, inasmuch as any variation in the finish, either in its application or subsequent rubbing, or in the mixture of clear and flat lacquers, would affect the final result.

A good portion of the success of these three furniture manufacturers can be definitely attributed to their perfected fine finishes. Probably many other manufacturers can ascribe their success to the same cause.

There is certainly an abundance of fine furniture on the market. Unfortunately there is also an excessive amount of the other kind, dismal in color, poor in quality and deficient in workmanship. Once the color fault is corrected, improvements in other directions are certain to follow. You will finish as you begin, and as the right color begets other qualities and improvements, so does the wrong color presage subsequent deficiencies.

Colors of Nature Are Permanently Attractive

Nature is a profligate displayer of variegated colors—all good and always the same. The blue in the violet was perfect at first —is perfect now. Nature continues to add to its color, but it does so very very slowly; and, above all, Nature seldom, if ever, makes a mistake. Nature should be imitated. It is the surest way to improve your product and, in doing so, you keep down your costs.

Eye appeal is the head of the sales force. The thin film of finish that covers a piece of furniture, and many other articles, makes or breaks sales. Without quality finishing even the best of designs and the sturdiest construction will avail nothing. Without the right color, there can be no satisfactory quality. When only one of the large number of finishing material manufacturers has 8000 stain formulas, most of them active, it is a clear indication that too

Your Products can now be finished quickly without sacrificing quality.

Your Products can now have the hardest finish, with the best color retention.

Codur Enamels produce an exceedingly durable and beautiful finish in a remarkably short time. Here are some of their special features:

- Developed for use in high-grade products subjected to severe service conditions, such as refrigerators, washing machines, kitchen cabinets, etc.
- Dry out of dust rapidly, cutting down both finishing time and dirt spoilage.
- Bake in five minutes at 350° F., 1 hour at 250° F.
- Baked finish is exceedingly tough and resistant to marring, moisture, and action of household chemicals.
- Excellent adhesion, color retention, and flexibility.
- Cover well in one coat.
- For use on all metals and Bakelite.
- Supplied in white, black, and a wide range of colors with and without metallic lustre.

A Technical Data Sheet on Codur Enamels is now available. Data includes grades, application and reduction instructions, baking schedules, specifications for finishing steel cabinets and furniture and metallic finishes on metals, and other information that the practical finisher wants. Send for your copy.

Maas and Waldstein Co. Newark, N. J.

Branch Offices and Warehouses . . . 1336 Washington Blvd., Chicago . . . 1220 W. Pico Blvd., Los Angeles

LACQUERS PIONEERS IN PROTECTION ENAMELS

DULUX for furniture saves money in two ways:

1. Its unusual build means that you need only one coat, instead of the two coats usual with lacquer. Material savings up to 30% are possible.

2. It saves time. Made to dry quickly, at elevated temperatures—2 hours at 150° . . . DULUX offers you a 5½ - 7½ hour finishing schedule from sealer to packer . . . as compared to the usual 29 - 43 hour schedule for varnish, and the 22-28

DU PONT
REG. U. S. PAT. OFF.

DULUX

REG. U. S. PAT. OFF.

FULFILLING AGAIN THE DU PONT PLEDGE OF BETTER

hour schedule for lacquer. DULUX also saves time because it's so easy to rub.

You'll like the character of the finish, too. DULUX has a clear, bright film with excellent depth of appearance. It has the resistance to cold cracking, scratching, printing, marring, water and alcohol you can expect from the best lacquer.

In fact, DULUX gives you the combination you've always wanted: a finish with the flow and build of varnish and the speed and quality of lacquer.

If you are interested in streamlining your production line, you should look into the savings that DULUX offers! For full information, write to E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington, Del. Canada: Canadian Industries, Ltd., Toronto. Great Britain: Nobel Chemical Finishes, London.

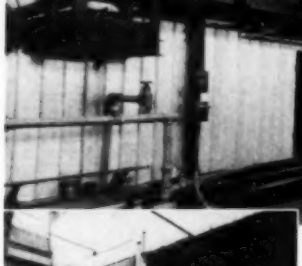
FOR FURNITURE

DU PONT

REG. U. S. PAT. OFF.

THINGS FOR BETTER LIVING THROUGH CHEMISTRY

OVENS



Above: Mahon Convection Type Oven engineered and installed for Remington Rand, Inc., Tonawanda, N. Y. Below: Metal Cleaning Machines installed by Mahon as a part of the installation.

. . . of Any Type for Every Industrial Requirement

Oven efficiency in industry today is dependent upon proper oven engineering . . . Ovens are not a standard commodity—each individual installation requires careful planning and expert engineering. That is why you cannot afford to take chances . . that is why you should turn your oven problems over to Mahon engineers — men who are backed by years of practical experience, and a record of hundreds of highly efficient installations in every industry. Properly engineered ovens pay dividends over a period of years — initial cost is not the all-important factor to consider when buying. Call in a Mahon engineer today . . . consultation will not place you under any obligation.

THE R. C. MAHON COMPANY
DETROIT — — CHICAGO

Designers and Manufacturers of Metal Cleaning Machines, Rust Proofing Machines, Hydro-Filter Spray Booths, Ovens of All Types, Hydro-Foam Dust Collectors, and Many Other Units of Special Production Equipment.

MAHON

much haste has occurred somewhere in the choice of colors. Remember that old adage, "Haste Makes Waste." It is always true.

Duplicating Colors at Lower Cost

This same manufacturer of finishing materials also declares that many requests for new stains are the result of efforts to duplicate or equal existent colors, at lower costs. This is another policy in the right direction, but unfortunately it usually backfires by not giving equal quality, although costs are less. Too frequently the reduced cost factor eliminates the more important consideration.

The most neglible of all costs in producing furniture is the cost of finishing materials. Of course, the expense of properly preparing the wood and the labor of applying finishes, when added to the cost of finishing materials, makes the finishing cost an important item, but the finishing materials alone are a very small percent of the total cost. The difference between the cost of good and poor material is so small a percent of the resultant total article cost that it should never even be considered.

Change When You Find Something Better

Color that has a rich tone—that will be reasonably permanent, will not pall, and will stand out in its surroundings in store or home—is like the Will-o-the-Wisp, something wanted, something needed, but something that is too seldom captured. Possibly the continued seeking accounts for the 8000 formulas. On the other hand, things that are scarce are not easily obtained, so why such a variety of stain colors. The answer probably is, anticipation that the new color will do what the preceding colors have failed to accomplish. We are inclined to be a little too hopeful and not sufficiently analytical or practical. We jump at conclusions too quickly. Color is the most ephemeral quality in furniture so far as first judgment is concerned. Once it stands the test of time and general acceptance, it has proved its worth and should not be relinquished until it is definitely known to have been superseded by a real improvement or by some new and not passing popular demand.

This article is not written in order to simplify the production problems of finishing material manufacturers. The purpose is rather to emphasize, to users of finishing materials, a costly failing. This applies specifically to many manufacturers of furniture.

Finish Colors Not a Fad

Radical departures in designs and colors of shoes and clothing, worn and discarded within six months or a year, constitutes fads and fleeting fancies. These are expected and wanted by the public and are helpful to the manufacturers in the promotion of sales. However, for manufacturers of long-life articles like furniture to use the same principle is obviously and fundamentally wrong. Most furniture is expected to give at least a decade of service. It must be serviceable and include qualities permanently pleasing to the eye. All who buy it expect this. They want individuality and style but

of the permanent kind. Frequently they are disappointed — and color deficiencies are the dominating factor because, as stated before, the right colors will always be accompanied by the other necessary requirements of satisfying qualities.

Improved Metal Cleaning

MORE effective cleaning of metal surfaces, preparatory to finishing, means cleaning that is more rapid in action and more thorough in results. To avoid delays in production, cleaning operations must be maintained at the same high efficiency demanded of preceding manufacturing and subsequent finishing operations. They must be completed in the time allotted them in the production cycle; any increase in time means either reduced production or increased costs for supplementary cleaning operations.

Greater safety in cleaning means greater safety for the personnel and for the surfaces being cleaned. Injuries to workmen, resulting from exposure to harmful or toxic chemicals used in cleaning, cause lost time and compensation claims which can often be avoided by the use of safer and more effective materials. Valuable equipment, especially that constructed of sensitive metals, is often irreparably damaged by the use of unsuitable or unsafe materials. Efforts to raise the standards of safety can be achieved only through research planned in that direction.

To be successful, any new cleaning product or cleaning process must be sastifactory and economical to use. This does not necessarily mean that a product must be cheaper than present products. As a matter of fact, more efficient products are usually more expensive to produce. They may reduce costs in one or more of several ways; for example, by reducing or eliminating rejects due to defective cleaning, or by improving the quality of the product through making the time expended on cleaning more effective.

For cleaning operations that use the same solutions continuously over a period of time, an increase in the useful life of the cleaning bath results in economy both in the quantity of material used and a saving in time lost due to frequent changing of solutions.

It is always hazardous to predict what the future will bring, but unquestionably the advances still to be made in metal cleaning will have as far reaching effects in making for further economy and increased production as did the earlier advances when cleaning was first recognized by leading manufacturers of industrial cleaning materials and equipment. The present research efforts of these organizations are based not only on past cleaning experience but they are facilitated by a current knowledge of conditions in many different industries.—*Oakite News Service.*

Catalog on Ventilating Fans

A new 24-page, 8½x11-in. catalog illustrates and describes Axial Flow fants offered by De Bothezat Ventilating Equipment Division, American Machine & Metals, Inc., East Moline, Ill. Book contains valuable engineering information and reference tables.

THIS FINISH TAKES

a 1 5/8" draw from a flat sheet

Retaining its beautiful, continuous surface lustre through deep draws and severe sterilization, Color-Cote has made paint history. Applied by brush, spray, dip or roller, Color-Cote works easily, covers perfectly and dries to a brilliant, modern finish . . . If you have a metal coating problem, write Watson-Standard for a "tailor-made" solution and a sample to prove it . . . This saves you time—and money.

COLOR · COTE

WRITE FOR SAMPLE

TOUGH JOB HEADQUARTERS

℞ Prescription Finishes

Give us your metal coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

THE WATSON-STANDARD CO.

Manufacturers of PAINTS VARNISHES INDUSTRIAL FINISHES AND LITHOGRAPH COATINGS

FACTORY AND GENERAL OFFICES: PITTSBURGH, PA.
WAREHOUSES: BOSTON · BUFFALO · DETROIT

We Use Synthetic Enamel

ON SIGNBOARDS, WOOD LETTERS, NOVELTIES

BY JOHN F. WAGNER
Spanjer Bros. Inc., Newark, N. J.

BEING IN THE business of constructing and manufacturing signboards, wood letters and wood novelties which are used by the sign painting trade, we know that the average sign painters are still using a paint brush for the basic coats of paint on their jobs. Up until a very short time ago we were in this same class, using white leads, pigmented colors and varnishes, but have now switched to synthetic enamel.

Consulting the chemists of one of the country's largest paint manufacturing concerns, we were able to work out a definite procedure with their Transportation Synthetic Enamel line. This change was made for four reasons:

1) Spray work over brush work is faster and produces a much neater and cleaner job.

2) It is more economical because of the labor involved in the former method of mixing paints and the additional cost necessary to secure an ANo.1 job.

3) Synthetic enamel sets and is dust free in less than an hour, thereby enabling the average sign painter with the smallest work room to stand up his work, so as to avoid all trace of sags.

4) A more even coat is obtained by using synthetic enamel sprayed, than could be obtained with a paint brush.

The method of painting wood signs, Masonite and other porous surfaces is as follows: The surface is first treated with a coat of clear wood primer reduced approximately 25% with suitable reducer. This coat is left to dry overnight and, without sanding or scuffing of any kind, it is followed by a coat of white sanding primer. This also is left to dry overnight. Next day the primer coat is puttied and dry sanded with a portable reciprocating block sander, or by hand on parts where a sander of this type could not be used. After this procedure is carried out, the signs are brushed and air dusted to make sure that no dust or dirt remains on the surface. A mist coat of synthetic enamel is then sprayed on and allowed to set from 10 to 30 minutes. A full wet coat of enamel is then applied.

For Galvanized Iron Signs

The treatment for signs constructed of galvanized iron or galvanneal differs somewhat from the procedure outlined above, in

BE MORE SPECIFIC MR. WEBSTER!

Even the best word umpire occasionally exposes himself to a pop bottle barrage. Witness this definition by Webster: "FINISH—a material used in finishing . . ." That may have sufficed in the days of 'way back when' but in this streamlined age—never! Providing sturdy sales legs for products in the form of coatings that measure up to SPECIFIC requirements—coatings that look better, wear longer, reduce finishing costs—is Stanley's place in your production picture. Possibly the Stanley Laboratory already has developed the coating that is the perfect answer to your particular problem. Address Department K—

THE STANLEY CHEMICAL CO.

EAST BERLIN CONNECTICUT

Lacquers · Enamels · Synthetics · Japans

A SUBSIDIARY OF THE STANLEY WORKS NEW BRITAIN CONN.

that the metal surface first has to be washed with a metal cleaning solution or cider vinegar, to remove all traces of oil, grease or foreign matter. After this solution dries, the metal is sprayed with a coat of metal primer. Permitting this to dry overnight, it is then dry sanded, and from this point on the procedure for the final coats is the same as for wood, masonite and other porous surfaces.

Care should be taken when painting any porous surfaces to see that all edges, backs and ends are carefully covered so as to guarantee against checking, warping or decaying due to exposure to the elements.

Wood letters, panels or any additional designs for these signs are finished the same as porous surfaces. They are coated all over and attached to these signs from the back, after the complete sign has dried from 12 to 18 hours.

Working with this method on a large assortment of signs has proved to be more satisfactory, in both labor and material costs, than the former paint-brush method.

Burning-in Knife

WHILE the burning-in knife isn't new to finish repairers who are always furnished with the latest tools, it is probably an unknown luxury to some of their less fortunate brother craftsmen. I have just been looking over a folder that illustrates and briefly describes some features of the "Everready" electric burning-in knife with automatic heat control.

It looks like a screwdriver with a large sleeve extending almost from the handle to the point. This sleeve contains the electric heating element that heats the working blade or point of the tool. Features of the tool are: 1) Automatic heat control; 2) removable steel point; 3) a removable extension cord to plug into any electric light socket; 4) an easily replaceable heating element.

According to the bulletin, this electric knife can be kept at the desired temperature during the entire working period, thereby preventing the loss of any time for "heating-up." The approximate cost of operation is said to be only five cents per working day. The operator regulates the temperature to suit the particular job. The knife is so designed that it is absolutely "shock-proof." It is made of high grade durable materials, which insures the purchaser against frequent or expensive maintenance. All parts can be replaced at any time.—F. M.

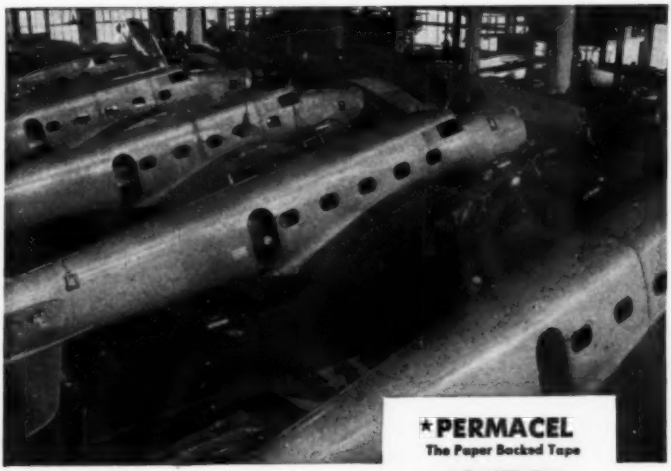
Paint for Hot Surfaces

The American Chemical Paint Co., Ambler, Pa., now has ready for distribution a new bulletin describing Kemick, a chemical rust-preventing paint for metal surfaces that are subjected to high temperatures. It stays put even though the metal gets red hot; is especially adapted for use on engine exhaust manifolds, exhaust pipes and mufflers.

Metal Lacquer-Enamel Review Free

A comprehensive review of the various methods of applying lacquers and enamels to metal products has just been published by Maas & Waldstein, 438 Riverside Ave., Newark, N. J. Copies of this review, which was presented by G. Klinkenstein, Vice-President and Technical Director of Maas & Waldstein before the recent annual convention of the American Electroplaters Society, are available on request.

★Used and Preferred by AVIATION INDUSTRY



Ewing Galloway, N. Y.

Industrial adhesive tapes have kept pace with the great strides made in airplane manufacturing. For painting, stenciling designs and general protection of parts during ocean transportation, INDUSTRIAL adhesive tapes are "taps". Aviation progress means greater use of adhesive tapes.

•

Please consult our laboratory for the answer to any special tape problem. No obligation.

INDUSTRIAL TAPE CORPORATION
NEW BRUNSWICK, N. J.

★PERMACEL
The Paper Backed Tape

★JONFLEX
Fine Cloth Tape

★INDUSTRIAL
Coarse Cloth Tape

★UTILITAPE
Waterproof Cloth Tape in standard colors

ELECTAPE
With Flexible Bakelite Coating

★METACEL
Metal Foil Backed Tape

★TEXCEL
Transparent Tape

•

Samples on request

Portable Electric Sander

Sterling Products Co., 2457 Woodward Ave., Detroit, Mich., announces a new product—the Sterling Gyro Electric Sander, which is here illustrated.

This new sander has a self-contained, gear-driven electric motor and can be plugged into any electric light socket. The flexible sanding pad operates in a movement which closely simulates the hand sanding motion of the skilled craftsman. Operating at 4000-r.p.m., it is reported to do a sanding job in a fraction of the time required by hand. Abrasive paper is easily attached to the sanding pad and held in place by a special holder. It uses one-fourth of a standard size 9 x 11-in. sheet. Any type or make of abrasive paper may be used. It can also be used for rubbing and polishing, in which case cloths can be attached in like manner.

Guided by one hand; weighs only 3½-lbs.

This Gyro Sander is sturidly constructed for continuous service yet light in weight—3½-lbs. One hand is all that is needed to guide the machine over the work.

According to Dr. S. James Herman, President of Sterling Products Co., "An outstanding feature of the Sterling Gyro is that by reason of the unique motion of the sanding pad, there is a complete elimination of the chasing and graining effects so common with disc or belt type sanders. We now have duplicated the motion of the best type of hand sanding and with this machine can do the work many times faster and much better."

New...

MATERIALS
SUPPLIES
EQUIPMENT

Faster Dip-Process of Wrinkle Finishing

New Wrinkle, Inc., Dayton, Ohio, licensors of wrinkle finishes under the patents held by the company, has recently developed what is known as the New Wrinkle Dip-Process of Castings Finishing, which promises desirable indirect advantages to foundries, doubled production for castings users, and a decided savings to both.

The New Wrinkle Dip-Process of Castings Finishing coordinates the merits of wrinkle finishes with three simple steps.

1) The casting is dipped in a thin solution of wrinkle finish. This dipping process not only insures complete coverage for all exposed to-the-eye surfaces, but securely seals

EGYPTIAN FINISHES

EGYPTIAN HIGH BAKE N. F. R.—
A tough mar-proof chemically resistant synthetic finish for all types of metal products.

EGYPTIAN ZINC CHROMATE PRIMER—
An excellent rust inhibiting undercoat. Dries rapidly at room temperature. Can be used in multi-coat single bake systems. For exterior and interior use.

EGYPTIAN PERSPIRATION RESISTING LACQUER—
Offers unusual resistance to body acids encountered by frequent handling. Produces a hard film, extremely durable to wear and tear.

EGYPTIAN FINISHING LACQUERS—
For use over colored enamels. Tough, light colored lacquers which withstand buffing to extremely high quality finish. Extremely resistant to handling.

EGYPTIAN FLEXIBLE CLEAR LACQUERS—
Air-dry clear lacquers for use on sheet metal which is later to be formed into the finished article. Excellent adhesion to brass, aluminum, lead, copper, oxidized copper and steel. Tough and extremely durable.

These and numberless other lacquers, both clear and pigmented, as well as synthetic finishes are available to the trade for all types of finishing. We will be glad to furnish details upon receipt of your request.

THE EGYPTIAN LACQUER MANUFACTURING COMPANY
Rockefeller Center
New York

all pores on hidden surfaces where rustproofing is the only duty a finish serves.

2) The casting is placed on a slightly inclined, removable screen-covered rack so the surplus paint is collected in a tray which returns it to the dipping tank. By racking the castings in this manner and letting them stand for several minutes, the finish is given an opportunity to set.

3) The casting is now ready for a quick spraying accomplished with a minimum of waste as the atomized material readily adheres to the wet casting surface.

During the baking operation which follows, New Wrinkle effects the change which has made it one of the popular finishes today. It provides both an attractive appearance and a hard surface that cannot be easily marred. Its effect ranges from the small "fish-eye" wrinkle of fine texture to the "pine tree" wrinkle, dependent upon the desire of the user. It hides any surface flaws in the casting and, by so doing, does away with the need for ultra-finished castings at the foundry.

Results achieved through the New Wrinkle Dip-Process of Castings Finishing are as follows:

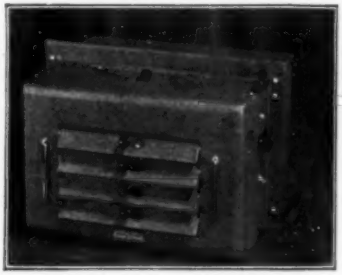
1) Lower initial cost of castings at the foundry; 2) Output of castings in the finishing department doubled; 3) Saves 25% to 40% on finishing materials; 4) Assures complete surface coverage to seal casting pores against rust; 5) Eliminates rejects which average 20% under ordinary finishing conditions; 6) Does not require costly equipment. The additional equipment needed are a dipping tank and rack which can readily be made in the product finishers own plant.

The New Wrinkle Dip-Process of Castings Finishing may only be applied in connection with the use of wrinkle finishes. This is revealed through the recent filing of patent applications in the U. S. Patent Office. It automatically is released to castings users through the purchase of wrinkle finishes from any one of the 136 licensees of New Wrinkle, Inc., who, under their license, manufacture and distribute wrinkle finishing materials.

Clean Air to Finish Room

A small unit for installation, singly or in multiple, in windows or wall space of a closed finishing room, is announced by The Ad-Lee Co., 825 S. Wabash Ave., Chicago.

This unit should be useful in small finishing rooms where the management can not afford the type of apparatus used in large plants, but where it is just as essential to have clean air for breathing and for contact with work in process.



Special blower fans, included in the unit, pull in the outside air at whatever speed is desired and draw it through a viscous type filter which removes dust, dirt, smoke, rain, fog, etc., bringing clean fresh filtered air into the room. Four louvers on the front of the unit can be adjusted to direct the flow of air up or down as desired.

The unit comes complete with an electric cord that can be plugged into any electric light socket. Dimensions of one unit are 11x13x16-in. Used filters are easily removed, cleaned and replaced. The outfit can be used to recirculate and clean

OVER THE TOP!

Sales quotas are established to be equalled or exceeded, yet many a sales organization is handicapped in going over the top by inferior finishes on the products to be sold.

It is not good business to save cents on finish and lose dollars on sales. The finish of a product can easily make the whole difference between an "also-ran" and a "go-getter" . . . and what a difference that makes to your sales staff and to you in dollars and cents.

We maintain a Creative Studio, manned by recognized artists, for the purpose of analyzing products and creating sales-stimulating finishes. The studio has been helpful to many manufacturers . . . perhaps we can serve you! Will you write? No cost, no obligation.

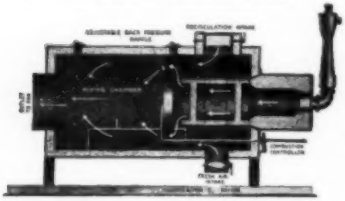
ROCKFORD VARNISH COMPANY
Manufacturers of Finishing Materials
ROCKFORD • ILLINOIS

NO TAMPERING WITH QUALITY

room air as well as to pull in and clean outside air. A damper permits outside air to be entirely or partially cut off when desired. The outside shell of the units has a durable baked wrinkle finish in grey or brown.

For Oven Heat

Controlled combustion is featured as a new development in direct gas-fired heaters or baking ovens. Ac-



Eliminates "stink and fouling"

cording to the manufacturer, The Despatch Oven Co., Minneapolis, Minn., this new equipment assures great operating efficiency and flexibility under all kinds of heater applications. The need for an adjustable controlled combustion feature on externally-mounted direct-fired air heaters has been long apparent. Engineers have noted a "stink" from unburned gases, and a change in the operating efficiency of the direct-fired air heater when operating conditions varied.

Referring to the accompanying cut, note that the alloy steel baffle is mounted on suitable guide rails and is interconnected to a threaded rod that runs to the front of heater. By means of a knurled knob, the distance between the end of the combustion chamber and the baffle can be increased or decreased to meet each operating condition. In other words, back pressure set up in the combustion chamber may be positively regulated, so maintaining proper combustion temperature, proper induced drafts, and maximum combustion efficiency under each operating requirement. This better combustion eliminates the "stink" from unburned gases — eliminates fouled finishes such as defective or "fisheye" wrinkles, and killing of gloss — and in addition improves working conditions for operators as well as lowering fuel costs.

Fire Protection

New and improved C-O-Two baffle type nozzles, providing a non-turbulent distribution of gas from C-O-Two carbon dioxide fire extinguishing systems have been developed by the C-O-Two Fire Equipment Co., 560 Belmont Ave., Newark, N. J. These new nozzles reduce the velocity and pressure of the discharge and permit rapid expansion and non-violent penetration of the gas throughout the entire protected area. They are compact and do not require a protruding horn or metal enclosure which might become damaged.

M. J. Pearce Becomes Sales Manager for Ferbert-Schorndorfer Co.

David Andrew, President of The Ferbert-Schorndorfer Co., Cleveland, Ohio, has announced the appointment of M. J. (Jim) Pearce as Sales Manager, effective October 1st.

Mr. Pearce has been actively engaged in industrial sales work for the past 19 years. He became associated with The Glidden Co. at their Cleveland headquarters in 1920, upon his graduation from the University of Illinois, as a chemical engineer. Until 1928 he remained in Cleveland in charge of the Technical Division of the Industrial Sales Department. He then became Sales Manager of the Chicago division of The Glidden Co., where he remained until 1931.

In August, 1931, Mr. Pearce was transferred to Reading, Pa., to reorganize the eastern industrial activities of the Glidden Co., remaining there as Eastern Direct Sales Manager until the close of 1938 when he was transferred to Chicago as Director of Technical Service for the entire company.

Mr. Andrew has supervised the sales activities of The Ferbert-Schorndorfer Co., in addition to his duties as president, but increasing business has now forced him to seek relief through the employment of Mr. Pearce as Sales Manager.

Spraying loose parts?

try SCOTCH MASKING TAPE

to hold them in position

When spraying one side and all edges on small wood pieces, or loose parts, try placing strips of Scotch Masking Tape across panels adhesive side up. Anchor this long tape strip with small pieces of tape. Place the small wood pieces, or loose parts, to be sprayed on the adhesive. They will be held firmly and will not loosen under spray pressure.

If you are not already using Scotch Masking Tape why not send for a sample roll and try it.

Made and Patented in U. S. A. by

MINNESOTA MINING & MFG. COMPANY

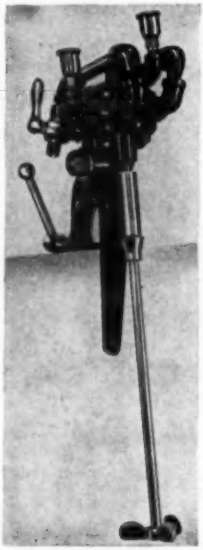
SAINT PAUL — MINNESOTA

The Desire To Serve — The Ability To Produce

Canadian Manufacturers and Distributors, CANADIAN-DUREX ABRASIVES, LTD., 114 Pearl St., Toronto, Can.

Air-Motored Mixer

With the introduction of the Type AB Pneumix air-motored mixer, the Eclipse Air Brush Co., Inc., 390 Park Ave., Newark, N. J., has filled out its series of clamp-type, direct-drive agitators. The AB is a small mixer designed especially for use on 5-gallon batches. It has all the regular Pneumix features: variable speeds through air intake control (30 to 6000-r.p.m.) and elimination of fire and explosion hazards through air-motor operation.



Portable, efficient, safe.

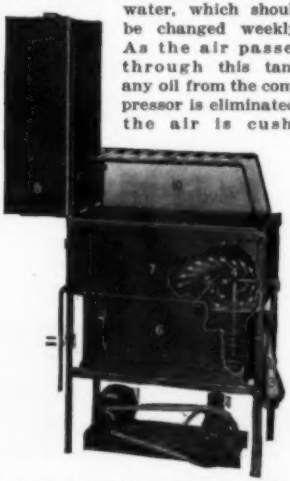
These mixers are in use on the most flammable materials—varnish, lacquer, gasoline, high explosives, etc.—and the air throttle control of speed makes their use particularly important on jobs where the viscosity of the material changes during mixing.

Type AB Pneumix is standard with a ⅝-in. chromium-plated or stainless steel shaft, 12-in. long, with one 3-in. triple-blade chromium-plated bronze or stainless steel propeller. Longer shaft, different propeller and other metals are supplied to order.

Salt Spray Test Machine

For use in determining the corrosion resisting qualities of painted, lacquered, enameled or electroplated metal parts, The Industrial Filter & Pump Mfg. Co., 3017 W. Carroll Ave., Chicago, Ill., has developed the salt spray corrosion testing machine illustrated herewith. One size machine has a testing cabinet 33-in. long, 14-in. wide and 29-in. high, with a 1/3-hp. motor to drive a compressor that developes 1½-cu.ft. of air per minute and 9-lbs. of continuous pressure.

The separator consists of a 3-gal. upright tank that is placed adjoining the cabinet. This tank is partially filled with two gallons of water, which should be changed weekly. As the air passes through this tank any oil from the compressor is eliminated, the air is cush-



A compact outfit for salt spray tests.

try to scratch or mar it!

Here is a lacquer finish that cannot be marred or scratched with the thumbnail, or other destructive agencies — a much tougher piece of goods than the ordinary lacquers. It produces a splendid transparent finish of full depth on maple, walnut, gum, mahogany and other cabinet woods.... It is made in either the Clear Gloss Rubbing or the Satin Finish. Mar Proof Lacquer Sealer is recommended for first coat.

THE SCHAEFER VARNISH COMPANY, INC.
Louisville, Kentucky

ioned for steady volume, and is cooled before delivery to spray tip.

Other parts include adjustable spray tips that will not cake with salt; a baffle to prevent direct spray on parts being tested, a drawer for salt water, a rack having rubber covered cross rods to support parts being tested, and a drain for used salt water. A salt water mist surrounds the parts being tested.

According to the manufacturer, products tested in this manner enjoy a definite advantage in selling, as the salt spray test now widely used means protection and satisfaction to buyers of coated or plated metals and metal parts.

Spray Gun

The Alexander Milburn Co., 1422 W. Baltimore St., Baltimore, Md., announces a special Type KSC spray gun for spraying cleaning solvents or oil into places difficult to reach with an ordinary type of spray gun or other tool.

Air enters the gun through the handle, and siphons the fluid from the cup. The delivery is controlled by adjusting the fluted tube; a knurled nut locks it in operating position. Any desired volume may be obtained, from an almost solid stream to a finely atomized spray. The fluid can be shut off entirely for dusting or drying. The design is simplicity itself, which makes it possible to operate with one hand. It has a die-cast body, and the con-

Sprays into places difficult to reach.

The Holiday Season

IS CLOSE AT HAND

Now is the time to prepare for it. Now is the time to put character into your products for holiday sale.

FLOCKING

IS THE ANSWER

A spray coating of soft, velvety Rayon will give any product the "eye appeal" that cannot be imitated by other decorative methods.

CLAREMONT FLOCKS

Cotton - Wool Rayon

recognized as the best, will convince you.

HAVE YOU TRIED THEM?

Write for samples and prices.

CLAREMONT WASTE MFG. CO.

CLAREMONT, N. H.

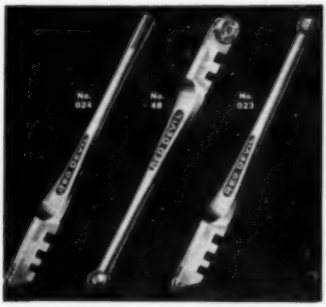
The country's leading manufacturers

tainer is made of high grade pressed steel. The trigger is conveniently located, and requires slight pressure to release the air or fluid.

Glass Cutters

A number of major improvements in design, construction and finish are features of the new Modern-line Plated "Red Devil" glass cutters now being introduced by Landon P. Smith, Inc., Irvington, N. J. At no increase in prices, these world-famous cutters are now heavily plated, have standardized handles, and offer new efficiency, greater durability and substantially increased eye appeal.

Chief among the latest improvements are: 1) Machine-made, uniform alloy steel wheels which are tougher, need no breaking-in, and will last longer; 2) oversize hard bronze axles, smoother running bearings, rustproof; 3) easy finger-rest handle, shaped to fit the hand, with long-reach head which facilitates reaching across the glass and affords a better balanced grip that does not slip; 4) heavy plating and polish which enable the cutter to slide more easily along the rule and increase the ease of handling; and 5) prelubrication of wheels and axles.



Three models of improved glass cutters.

Eliminate "Stink" and "Fouling"

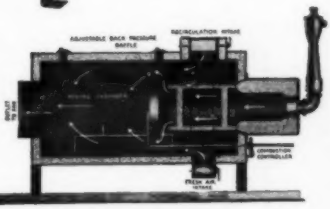
USE THE NEW

DESPATCH *Controlled Combustion*

DIRECT FIRED AIR HEATERS

Pat. Pending

Despatch DG-250 Controlled Combustion Direct Fired Air Heater Rated 250,000 BTU'S per hour.



Ideal for enameling ovens and dryers, Despatch CONTROLLED COMBUSTION Air Heaters eliminate "stink" due to unburned gasses and improper combustion; do away with "adjustment grief"; provide greater flexibility for future heating demands; improve processing; and lower fuel costs. CONTROLLED COMBUSTION, an outstanding new heater development, is found only on Despatch Direct Fired Air Heaters.

Alloy steel back pressure baffle regulates induced draft and controls combustion chamber temperature. An easy adjustment for any operating condition assures the utmost in maximum efficiency, eliminating "stink" and "fouling."

An interesting new Despatch bulletin tells why CONTROLLED COMBUSTION was needed on air heaters, how it was developed, and what it does. Write for your free copy of bulletin No. 72 today! It will be mailed promptly.

DESPATCH OVEN COMPANY

629 NINTH STREET, S. E. **MINNEAPOLIS, MINN.**

Manufacturers of a complete line of ovens and air heaters for all finish baking and drying requirements in the production line or in the laboratory.

Sealer for Compo Board

We have a composition board to paint in quantity and cannot get a satisfactory filler or sealer for it. We are using a Bakelite resin varnish for a finish on this board and would like to get a priming coat that would seal and work well with the Bakelite varnish. Something similar to that used on wallboards should do. Any information you can give us will be appreciated.—R. E. Co.

The type of sealer to use will depend upon the several characteristics of your composition board, including particularly how porous it is. Sealers that practical finishers use include glue size, shellac, and various kinds of lacquer sealer. We suggest you try some or all of these and make tests for results. Following the application and drying of the sealer coat, the surface should be sanded or smoothed with some suitable abrasive paper before the finish coat is applied. If the sanding cuts through to the composition board surface you may need to apply a thin intermediate coat of suitable sealer before putting on the final finish coat.—ED.

Thick Finish to Cover Defects

Please let us know if there is a finish for metals available that meets the following requirements:

A liquid coating that can be dipped to produce a thick finish very much like a shell instead of a thin film such as is obtained in lacqering with a brush or spray gun. The finish we have in mind was used some time ago by automobile manufacturers on handles, etc., and was applied, we believe, in softened sheet form. It had grain similar to ivory.

A finish that will conceal cast iron effectively. Painted and sprayed lacquers do not conceal the base completely; in other words, the appearance of the finished product always betrays the material it covers. The finish we have in mind covers the base material so well that it is necessary to cut away some of the finish in order to find out what it conceals.

We understand that the unfinished product must be without flaws and carefully prepared before any finish can be applied successfully. After this has been done it would not be objectionable to apply one or two priming coats including three or four top coats, each sanded and prepared to receive the final coat. Speed is of no consequence in considering this finish. Appearance is, however, of utmost importance.

We should appreciate any information you can give us that may lead us to the manufacturer who can meet these requirements. —F. M. Co.

In reply to this, we refer you to an article entitled "Covering Surfaces with a Sheet Celluloid

Questions Answers

Finish," published in June 1938 issue of INDUSTRIAL FINISHING, pages 25 and 26. Perhaps the information in this article will help you solve your problem. In a letter we are submitting names of concerns from whom you can obtain sheet celluloid, such as is mentioned in the article.—ED.

Grain Reproduction by Printed Lacquer Film

I just looked over a recent issue of INDUSTRIAL FINISHING and notice a request for information about Graining Paper manufacturers. I have been so pleased to receive information from you when I needed it some time ago, that I am glad to be able to tell you what I know about graining paper.

The American Tarso Corp. is manufacturing a lacquer film which is laid over a paper backing; they have film sheets for the reproduction of different kinds of woods.

This is something new and, while I was visiting the company's plant recently, I found it very interesting.

I would like to tell you how it is applied but I am afraid you won't understand exactly how it works and what can be done with it, therefore, I suggest you to write to the American Tarso, attention Mr. John S. Fridolph, and get all the details about it.—GERARD COLLIN, Sec. Treas., Montmagny Furniture Co. Ltd.

Editor's Note: Following up Mr. Collin's suggestion, we wrote

WHY LEADING MANUFACTURERS SPECIFY
R756 VARNISH FOR FIR PLYWOOD

R756

1 COAT COVERS
DRIES HARD IN 6-8 HOURS
READY FOR USE
EXCELLENT DURABILITY
UNUSUALLY HIGH GLOSS
EXTRA PALE COLOR

Use over 6001 Sealer for optimum results!

MARTIN VARNISH CO.
900 WEST 49TH PLACE CHICAGO, ILLINOIS

TOUSEY . . *Announces a New Development in Finish*

No. 69 DURACOTE PRIMER

A Flexible, all purpose Primer which combines the following qualities:

1. A baking range extending from 30 minutes at 140°F. to 20 minutes at 275°F.
2. Does not require sanding.
3. Has a coverage of approximately 1,000 square feet per gallon.
4. Will withstand salt spray for 85 hours.
5. Is extremely flexible under all normal conditions.

This primer has been used on a wide range of products extending from castings to truck bodies and is an outstanding material at a low cost.

TOUSEY VARNISH COMPANY

520 WEST 25th STREET CHICAGO, ILLINOIS

Varnishes—Enamels—Lacquers—Synthetics : Since 1885

American Tarso Corp., and in reply received a package of attractive samples and the following two letters which explain details of the process. Since this is another of several practical methods of reproducing natural wood and marble grain on plain wood, fiber and metal surfaces, we believe it will be of interest to readers.

LETTER NO. 1—To anyone who has never seen our film finish it is somewhat difficult to give a word picture of the product. Inasmuch as we believe you want a brief but rather comprehensive story, we are preparing some samples showing: 1) A primed base material prepared to receive our film; 2) our film applied to same; 3) another section showing a top finish over the applied film; 4) strips of the unmounted film.

With the brief description we will send you with these samples we believe you will have complete information on Tarso in a concise form. — JOHN S. FRIDOLPH, General Manager.

LETTER NO. 2—We have mailed you, under separate cover, a sample panel of Masonite tempered Preswood 3/16 x 16 x 24-in., a finished panel of sheet aluminum 8 x 9-in., and some film samples.

The face of this Presdwood was surfaced with a sanding surfacer and sanded smooth. Over two-thirds of this area we made application of our film. On one half of the film-applied section, we put over the film a topcoat of clear lacquer, and buffed the finish. Therefore, as you receive this sample, 1/3 of it will show our film carrying a buffed lacquer, 1/3 will show the film ap-

plied with no top finish over it, and 1/3 will show the prepared surface to which we applied our film.

We also sent you an 8x9-in. panel of aluminum carrying our film, over which a buffing lacquer was applied and buffed to a high gloss. We included, too, 8x12-in. samples of Breche Rose Marble design and Satinwood design in film form as shipped—that is with the paper backing on the sheet. Also, a piece of Prima Vera film from which the paper backing has been removed. In other words, this latter is the film itself ready for application to a given base.

With these exhibits before you, the following brief explanation should make the procedure of application quite clear.

Our various designs of wood graining, marble, etc., can be manufactured in special size sheets, as required; but our stock designs in wood and marble grains are 34x50-in. in size, other than the quarter matched butt walnut film which is 32x50-in. For industrial finishing we can ship these stock sheets cut to the customer's measurements and shapes.

The method of application, whether to wallboards, such as Masonite, etc., or to plywood, wood, metal, etc., requires the base material to be primed. In the case of wood, as a base material, the wood itself should be suitable for the type of dull, rubbed or satin finish, as wanted. It should be sanded smooth and carry the proper sealer and surfacer.

The film blank, with the paper on, is immersed in water of about room temperature. The water

Try this NEW Finish

Used over a primer on all metal objects where a good durable finish is required.

Highest satisfying results are obtained by users.

WALKER'S CHLORINATED RUBBER FINISH

—has drying quality of lacquer. Either air dry or force dry—and quality of finish is never destroyed by force drying.

Extreme outdoor durability.

Resists acids and alkalies.

High gloss, but may be modified to a dull finish if desirable.

Send for more details of this excellent finish — special prices.

H. V. Walker Co.
ELIZABETH, NEW JERSEY

Finishes that fit your Product

New England Representatives
Brown & Dean Co., Providence, R. I.

GOLD
SILVER or
COPPER
Bronze Powder
Finishes

Give your product that "certain something" that produces more $$$

SUNBRITE

The Mitchell-Mayer Co.
ST. LOUIS, MO.

GRAINING PLATES
bring out the
QUALITY *you*
have built in
YOUR PRODUCT

AMERICAN
ELECTROTYPE COMPANY
104 E. MASON ST.
MILWAUKEE, WIS.

readily releases the paper backing which carries a water-soluble sizing. The film itself is then placed in a second tank of clean water of the same temperature. The second immersion acts as a rinse. The films may then be left in the second water tank for half a day or more, being removed as the operator needs the film.

The film is attached to a given base by what we term a "welding solution." This welding solution is really a solvent of the film. In its concentrated form the solvent or solution would dissolve the film back into a liquid state. The solvent is of such nature as to mix with water, the water acting as a retarder in the action of the solution on the film.

For general application 25% to 33% solution, and the balance water, will give the necessary adhesion to an average lacquer base. The solution and water, of course, must be thoroughly mixed.

The film is removed from the second tank of water and either dipped through the mixed solution, or the mixed solution may be swabbed on the surface to which the film will be affixed. The film is placed into position on the base surface and squeegeed thoroughly with a small rubber squeegee. The strokes should be light and firm from the center to all outside edges. This operation removes the excess moisture and air from beneath the film. The film surface is then wiped with a rag and allowed to set until the solvent in the welding solution has evaporated. This takes about the same length of time that is required for a coat of air-drying lacquer to season. Thereafter the film is ready for top finishing.

The general specifications of our film are of such nature as will permit its application to a wide variety of industrial finishing schedules—low bake up to 250°F., or air-dry. Due to the film's flexibility it can be used with flexible primers, etc., and if the topcoat used over the film is flexible the finished work can be bent without cracking. The particular aluminum sample we sent to you, carries a rather brittle buffing lacquer and because of the nature of the top finish, this piece will not take bending. As stated, however, our film is sufficiently flexible to be used with the flexible types of primers and topcoats . . . —JOHN S. FRIDOLPH, General Manager.

Reclaiming Overspray

In the finishing of our breakfast sets we use a considerable quantity of gloss white lacquer. In the process of finishing we get quite an accumulation of this waste material when cleaning the turntables in our spray booths. We are wondering whether there is some method by which we can reclaim this material and use it for first coating. We realize, of course, that thinning it down in its present state will give us a coating that may be rather difficult to sand. If you have any information which will be of assistance to us, we will be glad to hear from you.—R. CHAIR CO.

We suggest you refer to the article entitled, "Turntable Reclaims Overspray," published in August issue, pages 48 and 49. This article describes and illustrates the American Lacquer Re-

FORM-A-ROC

We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

FORM-A-ROC

We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

FORM-A-ROC

Baking schedule is of great flexibility, permitting from 5-50 minutes at 250-375° F.

FORM-A-ROC

No matter which of the present worthy finishes of this type you may be using or planning to use we sincerely recommend that you investigate

FORM-A-ROC

MADE BY

THE VARNISH PRODUCTS CO.

5208 Harvard Avenue

CLEVELAND, O.

claimer, wherein the turntable consists of a shallow round pan containing lacquer thinner. The shallow pan has a wire mesh cover to support parts being sprayed. The lacquer thinner in the pan is supposed to attract a considerable percentage of the overspray which can then be reclaimed for use in secondary work.

In all cases material reclaimed in this or in any other way should be carefully strained to remove dirt and undissolved particles, which otherwise would show a more or less pebbly surface wherever used.

We understand that very few concerns find it profitable to reclaim the solids from overspray. The real possibilities for saving lie in the skillful use and careful adjustment of spray guns that are of the latest type and which are kept in perfect working condition.—ED.

Blanchit
Reg. U. S. Pat. Off.
Original — Patented
Wood Bleach
Made by
L. R. van ALLEN COMPANY
(Patent Licensee) CHICAGO

METALPREP
"USED FIRST, MAKES YOUR PAINT FINISH LAST"
Removes rust rapidly
Etches the surface
Provides Permanent Bond
The complete metal cleaner for all sheet metal surfaces. Easy to use; economical, safe, reliable.
Write for Literature Today
Neilson Chemical Co.
6564 Benson St. Detroit, Mich.
Australian Representatives:
Hardie Trading Pty., Ltd., Melbourne

Coating Nails

We have a problem involving the coating of nails and are inquiring for any information you may have regarding a system of application, baking schedule, etc. If you circularize this problem to the field, please do not mention our company's name.—D. N. Co.

Our suggestion is that the coating on nails could be economically applied either by tumbling in a tumbling barrel or by use of a centrifugal whirling machine. After removal from the tumbling barrel or whirling machine, we would suggest dumping the coated nails into shallow wire mesh trays and placing these in a baking oven. The baking schedule would probably have to be worked out according to the type of coating used . . . . —ED.

One of the companies to whom we referred your problem, sent us samples of perfectly coated small nails (finished black) and writes us as follows:

"The samples we are sending you herewith will show you the quality of finish our machine will produce on nails. These were done in bulk and have had one coat of enamel baked one hour at 250°F. in wire trays. As you stated, the nails were taken from the machine and dumped in bulk

into the trays. On removal from the oven the parts were rattled in the trays to break them up before cooling."—T. L. J. B. Co.

Waterproof Finish

MANY communities in the valleys of the Ohio and other rivers are almost annually subjected to the menace of flood waters. One of the after effects —ruined store fixtures and wall panels. In the city of Marietta, Ohio, a restaurant located on low ground had its ceiling and walls paneled with Masonite and finished with a waterproof enamel. The room has twice been flooded, being completely immersed on one occasion, and has survived these floods with no apparent damage.

A hotel grill room paneled with choice walnut plywood was completely ruined by a flood. Later it was found that the original appearance could be restored by gluing 1/20-in. walnut veneer to Masonite, using waterproof glue and suitable finish for protection.

Excellent burled effects can be applied to Masonite by the application of a filler made of colors ground in oil, mixed in varnish, and thinned with naphtha or other reducers.

Business concerns in the flood areas give prime consideration, when making improvements, to the possible effect of the next flood on their investment. Inasmuch as the finish is as important a consideration as the construction materials used, and since the resultant general appearance is usually the deciding factor in arriving at a final decision, it is obvious that progress depends principally on the effective presentation of the finisher's art.—T. J.

MAGIC TACK RAGS remove specks, lint and sand particles--- bring out that deep, smooth luster, produce a faultless surface for white or colored finish. Why use "home made" tack rags when you can buy MAGIC TACK RAGS at trifling cost! They are tackier, do not dry--- are dust-proof and spontaneous combustion proof. Packed in dozen and gross lots or more. Made only by the

Wm. A. Juergens Co.
4036-40 Lagrange Street,
Toledo, Ohio, U. S. A.
If your dealer does not carry Magic Tack Rags, write us for sample.

Industrial FINISHING

Distributed to Executives and Foremen Finishers in industrial plants where finishing coats are applied with finishing equipment.

Published the 18th of each month by PRACTICAL PUBLICATIONS, Inc.
222 East Ohio St., Indianapolis, Ind.
Telephone ..... Riley 6771

•

President ..... A. T. Gaumer
Vice Pres. and Editor ..... W. H. Rohr
Treasurer and Adv.-Mgr. ..... E. A. Dosch
Secretary ..... R. E. Suits

•

Subscription Rates per Year
U. S. and Possessions $2.00
Canada and Foreign Countries $3.00

EDITORIAL

Make and Keep Your Plant Safe From Fire

There's only one way to make sure that your premises and your personnel are safe from fire hazards. Even if you have definite regulations concerning protective measures, it is wise to work from the angle that your plant is inadequately protected. Ask your employes regarding suggestions for improved fire protection and fire prevention and have at least two different people inspect your plant critically.

There is no mental impact more overwhelming than news reporting the destruction and probable loss of life at your plant by fire. Only if resource eliminates remorse can you hope to feel relative security from fire hazard. And resource means enlisting every necessary method of precaution . . . . in advance!

In September of last year, compiled figures covering a 5-year period of an organization involving 34 factory groups, all equipped with fire extinguishers, 90% of the fires reported were put out with hand extinguishers; 315 out of 365 total fires were "under control" without involving the invasion of industrial premises by fireman, apparatus, water-flooding or production delay of a serious nature.

That illustrates preparedness, and builds a case for fire extinguisher installations! Certainly, if the proper type of extinguishers for any one class of fire was missing from the widely diversified operations represented by these 34 factory groups, the margin of safety would have been less.

So, where you have oils, paints or flammable liquids, do not fail to provide those premises with effective types of fire extinguishers of adequate capacity. Foam type—either chemical or mechanical—vaporizing liquid type or carbon dioxide type equipment is essential.

When you have merely the normal burnable materials, without the presence or proximity of flammable liquids, use the soda-acid or plain water type of extinguisher, in ample size for the risk involved. If premises are subject to freezing temperatures, use the anti-freeze type dis-

charged by hand pump or gas cartridge.

In all premises where electric current is used, including automobiles and trucks, provide against emergency with the non-conducting kind of extinguisher which is safe for use on electrical fires—like the vaporizing liquid or carbon dioxide types.

Be sure you inspect regularly, recharging the extinguishers which need it, and follow rigidly the maintenance instructions for annual recharging found on nameplates. Watch your men at fire-drills, in actual use of fire extinguishing equipment. Use only recharges that are made by manufacturers of underwriters' approved extinguishers.

Finally, use extra care where "temporary" work is being done, as to waste, wires, lights or obstructions.—FIREFAX.

Winter Lighting

* With the approach of winter and fewer hours of daylight, there is need for an immediate check-up of artificial lighting facilities in order to see that good light is available for all important work. After all, good finishing, especially the matching of colors, depends largely upon proper lighting facilities. Darkened dingy walls and ceilings will require increased light and lighting bills, which is an added burden upon factory costs.

There are three elements or factors that will do much to lessen our cost for artificial lighting. Soap, water, and white paint; in other words, shop cleanliness. It is not alone the cash saving factor in lowered lighting bills, but also the increased efficiency and production speed of man-power per well-lighted working hours. Why not clean up before winter comes?—C. D. Y.

Modern Equipment Saves Cash

* In our September 1939 issue, the Editor touched briefly upon the subject of getting the best from equipment. He could have gone much farther and emphasized the point that one can secure good results only from good equipment.

The use of worn-out, obsolete, out-dated equipment in a finishing room spells nothing but constant trouble. Air lines, compressors and spray guns, all a decade old, are a constant worry and a risk to the concern's reputation.

Perhaps the instant response to this is: "We can't afford it!" Possibly, or rather probably, this is true. But we cannot wait for a somewhat ephemeral upswing or business boom because each added day that we use obsolete equipment, we come nearer to having a "For Rent" or "For Sale" sign on our factory doors.

On the other hand, we do not feel justified in going into debt for new equipment. There's too much risk and, anyway, most of us dislike to be in debt.

A solution of this problem may lie in the budgeting of our gross

---

*** Guest Editorial .... Many readers can write an excellent editorial — two or three paragraphs presenting a timely suggestion or valuable idea that will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.**

income. We lay aside certain money for taxes and for other fixed charges. Why not set aside a certain part of our income each month for the renewal of old equipment? Of course, it may take a year before we have a sufficient amount to use in the purchase of modern equipment. But if we don't, we will still be using the obsolete outworn equipment, which will grow less and less efficient every year.

For Foremen Only

A division superintendency was to be filled. The works manager and the general superintendent were talking over possible candidates from among the foremen of the division.

"The foreman who stands out head and shoulders above all the rest, and the one that I think would fill the bill, is Fred Snyder," the general superintendent said.

The works manager asked why, and the general superintendent replied: "Because Fred has a better trained force of men under him than any other foreman in the division. He's an excellent instructor and as soon as he has a man educated he knows how to delegate responsibility to him.

"What's more, Fred has two good understudies, either one of whom can handle his job if we move him up to this superintendency. Bill Saxby, on the other hand, has enough technical knowledge to handle this job but, if we took him out, I don't know what would happen to his present department. He hasn't developed his men to the point where they can get along without him."

"Well, it looks as though Fred Snyder should get the call," the works manager concluded.

What if an opportunity for a promotion came to you today? Would you be held back because you have not shared your knowledge with the men under you?—Management Information.

HOT LACQUER UNIT

Complete with circulating pump, thermostat, thermometer, pressure maintaining valve, gauges, and control switches; fully automatic. Portable.

Send for literature.

M. & E. MANUFACTURING CO.
720 S. Meridian St., Indianapolis, Ind.

New Automobiles More Colorful for 1940

Black, a leader in automobile colors during depression years, is now relegated to sixth place, according to Mr. Howard Ketcham, Color Engineer and Consultant for the DuPont Co.

This may indicate that manufacturers are once again regarding color as a barometer that expresses the spirit of the time, inasmuch as black has not occupied so inconspicuous a place in production schedules since the boom years of 1927, 1928 and 1929.

Mr. Ketcham says further that a careful check at the show reveals that grey is the most important new color note predicted for this year's models by leading automobile producers. Next in

order of importance come blue, green, maroon, brown, black, cream and white.

Two-tone color schemes are a notable feature. Some designers of new cars have cleverly introduced line treatment in several of the 1940 models, providing graceful areas for effectual color balance in two tones. Among the most effective innovations is a departure from the overall one-color treatment that has been standard in recent years. Interesting combinations noted at the New York Automobile Show were gunmetal combined with cream, cream combined with cinnamon, light green combined with dark green, silver combined with metallic blue, and light blue combined with dark blue. The new feature in wheels is the stainless steel discs which add a lively note of emphasis to the pale type of color so generally introduced by most leading exhibitors.

The high visibility of the new automobile colors will serve as a safety factor and should contribute much toward reducing the toll of highway mishaps during 1940. Another finish of unique interest is the new metallic maroon offered by Buick. The result is particularly effective.

A number of the sport cars were particularly striking with their two-tone upholstery layouts. Bright colored leather seat back tops and whipcord lowers were not only serviceable looking but exceedingly smart.

Mr. Ketcham declares that, on the whole, this year's motor show is the most colorful he has witnessed during the past 15 years.

Fall Furniture Markets Reveal Activity

News of the fall furniture shows at Chicago, Ill., Grand Rapids, Mich., and Jamestown, N. Y., indicates activity and prompt buying of select merchandise. Many buyers arrived early, looked over what was available, picked out what was needed, and placed their orders for early delivery.

Factors influencing this action include the almost certainty of prices going higher, the fact that many stores need goods to replenish their low stocks, the general increased volume in furniture trade, and the desire to obtain early delivery from factories that may get behind on shipments because of growing demands for all kinds of retail merchandise and raw materials.

Ken - Wood Bleaches

Create Distinctive New Finishes

New Bulletin on Wood Bleaching

Kenneth O'Meara

Holland, Michigan

for

RADIANT ENERGY DRYING

NALCO DRITHERM

(INFRA-RED RAY)

CARBON LAMPS

Cut drying costs . . . Save time . . . Use minimum space . . . Get uniform results.

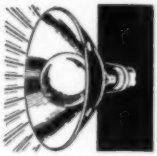
Write for information and prices today.

North American Elec. Lamp Co.

1030 Tyler Street St. Louis, Mo.

QUICKER, BETTER HEATING - BAKING - DEHYDRATING
***with* RADIANT ENERGY**

Is now possible *at low cost* with our Reflectors and Lamps, because they are plated with 24 karat gold, giving many exclusive advantages. Being the first and original infra-red-ray reflector and lamp, our engineers have much data available with which we can help to solve your problems. *Write today* for complete technical literature listing ten outstanding advantages and many known uses of our products



INFRA-RED-RAY DEVICES, INC. *The First to Sell Such Equipment*
9325 E. Forest Avenue DETROIT MICHIGAN

Furniture manufacturers who have had to make purchases of materials recently, declare that various types of materials they must have are now quoted at from 5% to 90% higher than prices paid for the same goods a few months ago. This will inevitably force the prices of furniture up because the manufacturers have neither the profit margin nor the possibility of cheapening their products sufficiently to permit them to continue offering quality furniture at "no increase in prices."

With so many new homes and apartments being built throughout the country, with a greater percentage of working people employed at good incomes, and with price trends upward, the present and future looks especially favorable for furniture manufacturers and for all lines of business that sell goods to the furniture manufacturing industry.

Letters from I. F. Readers

(Continued from page 9)

enamel stripper. We would like very much to receive the name, address and company connection of "C. N." in order that we might get in touch with him relative to one of our "Triad" strippers. — Detroit Rex Products Co.

Smooths Fir Grain

After looking over October 1939 issue, I believe that I have the answer to L. G. Co., page 58, regarding the finish of fir. "Firzite," the new fir treatment, has been on the market for some time and has proved satisfactory, both in industrial and in trade sales. I am sending you a leaflet on same.—H. J. Field.

Striping Tools

Kindly supply us with the address of the Beugler Mfg. Co., manufacturers of striping tools, as described on page 52 of the September 1939 issue of your magazine.—T. F. Co. (Automotive Equipment).

The company is in Los Angeles, Calif., at 4318 W. Second St.—ED.

Sanding Machines

Please send us a copy of your magazine and a list of the manufacturers of sanding machines. — C. B. Corp. (Engines, Compressors).

Wood Grain Finishes

Will you kindly let me know the address of the Dynox Co.? They deal in industrial wood grain finishes.—S. I. Co.

We believe you have in mind The Di-Noc Mfg. Co., Cleveland, Ohio.

Tumbling Barrels

Could you furnish us with the name of an eastern manufacturer of tumbling barrels?—B. Bros.

Yes, indeed, this information was sent along promptly.—ED.

Beer Can Finish

We note in your "Letters from Readers" section, a request for information concerning the coating used on the insides of beer cans. If

you will advise us the inquirer's name, we will try to straighten him out on this question—if his desire to know is not based upon mere curiosity.—Stoner-Mudge, Inc.

Infra Red Lamps

Please give us the names of the different manufacturers of infra red electric lamps, as we want to do some experimenting along this line. We are very much interested in the article by Mr. Robert W. Morris, on page 21 of your September issue, and are anxious to get all possible information on this proposition.—V. S. Co. (Advertising Novelties).

Information supplied.—ED.

Hilo Sales Conference

An important conference of Hilo Varnish Corp. Eastern Sales Representatives was held at the Brooklyn plant and main office, Oct. 17, with Dr. Mattiello, Industrial Sales Manager, presiding. The session was opened with address of welcome by the President, Mr. Carl J. Schumann. Executives of the various departments discussed problems of particular interest to the salesmen, factors which would help them make 1940 a "top" year for sales.

A conference of the Western Sales Representatives was held Oct. 23 and 24, at the Hotel Stevens, Chicago, Ill.

Hot Lacquer Unit Bulletin

A new 4-page bulletin, printed in black and red on tinted paper, describes and illustrates portable equipment for safely heating and effectively circulating high-solids lacquer which is heated to thin it and then sprayed hot. The bulletin contains interesting information about every part in the company's highly developed hot lacquer unit—adjustable as to temperature and pressure; automatic in operation. For a free copy, write M. & E. Mfg. Co., 720 S. Meridian St., Indianapolis, Ind.

G. O. Zeller with Haeuser Co.

Mr. Gustav O. Zeller announces that he is now associated, in an executive capacity, with the A. R. Haeuser Co., manufacturers and suppliers of finishing materials, 52 Warren St., Brooklyn, N. Y. Mr. Zeller is well known among finish users in this territory.

FOR OUTDOOR DURABILITY

USE

Non-Yellowing

MEARLMAID

PEARL ESSENCE

THE MEARL CORPORATION

153 Waverly Place, New York

FACTORIES:
ROSELLE, N. J. — EASTPORT, ME.

The world's largest producers of PEARL ESSENCE

Classified Advertising

MR. SALESMANAGER!

Are you interested in a GO-GETTER for all types of industrial finishes, who can increase your sales and get new accounts? Now employed in New York state, but desire new connection. Have excellent contacts and successful sales record. Address IF-770, care Industrial Finishing.

POSITION WANTED

As foreman finisher. Experienced in wood work, refrigerator work and auto painting. Can furnish good references. Address IF-773, care Industrial Finishing.

SALES EXECUTIVE POSITION DESIRED

By graduate chemical engineer with fifteen years' experience in the paint industry, including formulating, manufacturing, field work and sales. Thorough knowledge of industrial finishes and their application. Address IF-772, care Industrial Finishing.

WANTED.

Man with years of experience to take charge of stain and filler department of AAA1 paint company. Fine opening for the right man. Address IF-771, care Industrial Finishing.

NEW ENGLAND SALES REPRESENTATIVE WANTED.

Well-known wood and metal finishes concern has opening for reliable and experienced man as New England representative. Must be thoroughly familiar with finishing problems of furniture manufacturers and one who has demonstrated his ability in this particular territory. Give full information, including references, as to past and present connections. All replies will be considered confidential. Address IF-769, care Industrial Finishing.

SALESMEN & DISTRIBUTORS ALL TERRITORIES

To handle a complete line of efficiently designed portable heating and reflector units for Radiant Energy (infra red rays) drying process. Low Prices. Address ABBEY MFG. CO., 4 West Park st., Newark, N. J.

"PEERLESS" SPRAY BOOTHS.

Efficient design; sturdy construction—yet lowest prices: 4-ft. only $56.00; 6-ft. $85.00; 8-ft. $100.00, complete with CHAMPION Exhausters.

INDUSTRIAL EQUIPMENT CO.
208 N. Wells st. Chicago, Illinois

Index to Advertisers

Advance Paint Co. ..... Third Cover
American Electrotype Co. 58
Atlas Powder Co. 2

Berry Brothers 31
Binks Mfg. Co. 29

Claremont Waste Mfg. Co. 52
Classified Advertising 68

Day & Co., James B. 1
Despatch Oven Company 53
DeVilbiss Co., The 5
Dolan & Company, V. J. 6
du Pont deNemours & Co., E. I. 34-35

Egyptian Lacquer Mfg. Co. 45

Hilo Varnish Corp. 37

Industrial Tape Corp. 43
Infra-Red-Ray Devices, Inc. 66

Juergens Co., Wm. A. 61

Lilly Varnish Co. ..... Front Cover

Maas & Waldstein Co. 33
Mahon Co., The R. C. 36
Martin Varnish Co. 55
Mearl Corporation 67
Minnesota Mining & Mfg. Co. 49
Mitchell-Mayer Co. 58
M. & E. Mfg. Co. 64

Neilson Chemical Co. 60
North American Elec. Lamp Co. 65

O'Meara, Kenneth 65

Petow & Son, Edw. I. 7

Red Cross 61
Rockford Varnish Co. 47
Ross Engineering Corp., J. O. ..... Back Cover
Roxalin Flexible Lacquer Co. ..... Second Cover

Schaefer Varnish Co. 51
Stanley Chemical Co. 41
Sterling Products Co. 8

Tousey Varnish Co. 56

United Lacquer Mfg. Corp. 9

van Allen Co., L. R. 60
Varnish Products Co. 59

Walker Co., H. V. 57
Watson-Standard Co. 39

Zapon Co., The 2
Zapon-Brevolite Lacquer Co. 2

★ Used and Preferred by
AUTOMOBILE INDUSTRY

Keystone View Co., N. Y.

Mass production in this top ranking industry has been facilitated by the use of industrial adhesive tapes.

Speed and economy are the reasons these adhesive tapes are used for finishing, protection of plated parts, finishes, and for blocking out areas.

This popularity must be deserved—as evidenced by the quantity now being used.

•

Our laboratory is at your service to help solve any special tape problem. No obligation.

INDUSTRIAL TAPE CORPORATION
NEW BRUNSWICK, N. J.

★ **PERMACEL**
The Paper Backed Tape

★ **JONFLEX**
Fine Cloth Tape

★ **INDUSTRIAL**
Coarse Cloth Tape

UTILITAPE
Waterproof Cloth Tape in standard colors

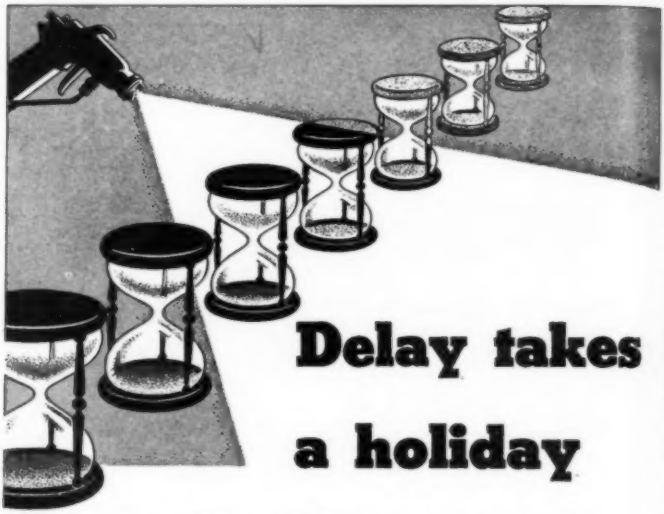
ELECTAPE
With Flexible Bakelite Coating

METACEL
Metal Foil Backed Tape

TEXCEL
Transparent Tape

•

Samples on request



Delay takes a holiday

"Delay Takes a Holiday" symbolizes the time saving and economy of H. T. A. Zaponite, the revolutionary wood finish. Five features of H. T. A. Zaponite's superiority are:

1. Time saved is 75%. With H. T. A. Zaponite work is ready for rubbing in 5 hours from the time spraying starts, with ordinary finishes 20 hours are required.
2. Floor space is reduced over 50%.
3. Its one coat application requires 50% less material than ordinary finishes.
4. H. T. A. Zaponite's single and complete application cuts labor costs sharply over three coat applications.
5. In one coat, it gives a finish that is better than those formerly achieved in three applications.

H. T. A. Zaponite is a real one coat finish — no sealer — by which 50% less material produces a full and complete finish. In addition it employs an entirely new method of application.

ZAPONITE — Reg. U. S. Pat. Off.

ZAPON REG. U. S. PAT. OFF.

EASTERN SALES: ZAPON DIVISION ATLAS POWDER COMPANY Stamford, Conn.

WESTERN SALES: ZAPON-REVOLUTE DIVISION ATLAS POWDER COMPANY

LACQUERS REVOLUTE ENAMELS REG. U. S. PAT. OFF.

INDUSTRIAL FINISHES